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A COMPENDIUM OF AIR FORCE INSTITUTE
OF TECHNOLOGY THESIS ABSTRACTS
RELATED TO ACQUISITION MANAGEMENT

THESIS

Dale A. Jackman, Captain, USAF

AFIT/GSM/LSY/90S-17

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AFIT/GSM/LSY/90S-17

A COMPENDIUM OF AIR FORCE INSTITUTE OF TECHNOLOGY THESIS
ABSTRACTS RELATED TO ACQUISITION MANAGEMENT

THESIS

Presented to the Faculty of the School of Systems and Logistics
of the Air Force Institute of Technology
Air University
In Partial Fulfillment of the
Requirements for the Degree of
Master of Science in Systems Management

Dale A. Jackman, B.S.

Captain, USAF

September 1990

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Preface

The purpose of this research was to provide a comprehensive outline of the research that has been conducted at the Air Force Institute of Technology in the area of acquisition management.

The genesis of this project was the frustration I experienced, along with my classmates, in trying to find a thesis topic related to Acquisition Management. It is my hope that this thesis will provide a point of departure for future AFIT students in their search for thesis topics. By reviewing the efforts of other students that have gone before, this compendium will facilitate a timely decision on a thesis topic.

This compendium covers many areas related to the Acquisition Management process including: Systems Management, Contract Management, Cost Management, and Logistics Management (as related to the acquisition process). In addition, it is my belief that this compendium will demonstrate to other academicians the depth of research conducted at the Air Force Institute of Technology in the areas related to acquisition management.

This research was not conducted without the contribution of others. I would like to express my appreciation for the dedicated efforts of my faculty advisor, Lt Col Curtis R. Cook, for providing direction and encouragement to sustain me throughout this research project. I would like to express thanks to my friends and family, especially my wife Ana and child to be, for understanding the many times that this effort kept me from being with them.

Dale A. Jackman

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Abstract

This study reviewed all theses abstracts produced by the students of the Air Force School of Systems and Logistics from the first class through the graduating class of 1989. The purpose of this research was to identify and consolidate all abstracts into one compendium related to Acquisition Management. This compendium presents the abstracts in four separate areas related to Acquisition Management. The four areas are: Systems Management, Contract Management, Cost Management, and Logistics Management (as related to the acquisition process). There is no evaluation made of the theses contained within the compendium. The abstracts were obtained through a DTIC search of all theses completed by students of the School of Systems and Logistics. The DTIC search was then narrowed by reviewing each of the thesis abstracts and determining if the thesis met the criteria for inclusion. The abstracts were then classified into one of the broad categories listed above. All abstracts are listed in alphabetical order by DTIC number within the respective categories, reverse chronological order.

A COMPENDIUM OF AIR FORCE INSTITUTE OF TECHNOLOGY THESIS ABSTRACTS
RELATED TO ACQUISITION MANAGEMENT

I. Introduction

The School of Systems and Logistics is the "Air Force's graduate school of technical management" (1:158). All students must complete two basic portions of the curriculum. In the first portion, students must satisfactorily complete a demanding course load. The second portion, perhaps even more demanding, is the thesis project that must be completed by every student. It is this portion that this research project specifically addresses.

Students entering the Air Force Institute of Technology must answer many questions, but one of the most important questions that students face is deciding what their thesis topic will be. One source of information is the list of thesis topics previous students have done. Another source, for generating ideas, is a list of topics that various people or organizations want students to research. The problem with both of these sources is that they do not limit the topics to Acquisition Management issues. It is the purpose of this thesis to further the mission of the Air Force Institute of Technology by decreasing the time and frustration of students in determining a thesis topic thereby enhancing the productivity of the research effort.

Specific Problem

The focus of my research was to develop a compendium of thesis topics completed by AFIT students that are specifically related to Acquisition Management. The definition of Acquisition Management for the purpose of my research is any topic related to the program/project management or acquisition of a military system. Program/project management is defined as the planning, scheduling, directing, and controlling of an organization's resources for a finite period of time to accomplish the organizational goal. Acquisition management is defined as acquiring by contract with appropriated funds supplies or services (including construction) by and for the use of the Federal Government through purchase or lease, whether the supplies, services, or system is already in existence or must be created, developed, demonstrated, and evaluated (2). This compendium will serve two purposes. First, future students can use the compendium to help them generate ideas for their thesis topic. Second, the compendium will be presented to other academicians outside AFIT to demonstrate the types of topics that AFIT students have researched.

Currently the AFIT library does maintain a copy of all the theses abstracts that have been produced by students. The challenge with the current body of knowledge is that the abstracts are not organized or confined to specific topics of interest. The contribution of my thesis to the current body of knowledge is to provide a concise document that pertains specifically to the area of Acquisition Management. This will provide future students with a single source of information outlining

what research has already been done on Acquisition Management topics and where additional research is required.

The second contribution this thesis makes is the generation of a single document that can be used by academicians from other universities. This will be useful to clearly demonstrate the range of topics researched by AFIT students in the area of acquisition management. The compendium will also be useful to demonstrate the quality of research that the Air Force Institute of Technology produces. This thesis will also guide students and faculty from other universities to areas that require further study in the area of acquisition management.

Investigative Questions

The specific questions that were used to screen theses for inclusion in the compendium are as follows: 1. Does this thesis meet the operational definition of Acquisition Management? 2. What specific area of Acquisition Management does this thesis relate to? The four major categories that will be used are: Systems Management, Contracting, Cost Analysis/Price Analysis, and Logistics, as related to Systems Management/Acquisition Management.

Scope

In order to accomplish this research, each of the 2,036 theses completed by School of Systems and Logistics students was reviewed and evaluated using a DTIC search. The review process was completed by reading each of the thesis abstracts contained in the DTIC and deciding if the abstracts were related to an area of Acquisition Management using

the operational definitions for Systems or Acquisition Management that were given previously. The thesis was then placed in one of the broad categories listed above. In order to accomplish this research I will follow three specific steps discussed in detail in the methodology section.

Background

The genesis for this thesis was a research project that my advisor developed after attending a symposium at the Naval Post Graduate School. The possible research topic was discussed between the two of us and I felt that this area would prove beneficial to students at AFIT. I based this decision on my experience when trying to find a thesis topic that was related to Systems Management. The decision was reinforced by comments of other classmates that experienced similar frustration in sorting through previous theses trying to find Acquisition Management topics that required further research.

Considering the volume of previous theses, 2,036 currently, and the small amount of time that students have to determine their thesis topic it is logical that some modification to the current body of knowledge is necessary to enhance its usefulness. This compendium provides a road map of the previous research to aide students in their decision process by providing a reservoir of Acquisition Management topics and abstracts, many of which require further study.

Of perhaps even greater importance, however, is the need to bring together, in one document, all AFIT research on acquisition management for use by the academic community. One goal of any research is to add

to the existing body of knowledge. Unless that body is known, however, a point of departure on which future research is based is unknown. The contribution of this project will be to provide the foundation on which future research, by students and faculty nation-wide, can be based in the area of acquisition management.

II. Methodology

Explanation of Method

Since the focus of my research is to develop a compendium of Acquisition Management topics and abstracts, the definitions used in sorting the theses will be crucial. For this reason I have chosen to use the method of content analysis. My research will make no value judgements about the theses but will simply determine if the thesis is related to Acquisition Management.

My research was composed of three basic steps of investigation. The first step was to obtain a complete listing of all theses that have been completed by the School of Systems and Logistics, approximately 2,036, using a DTIC search. The second step was to review each of the thesis abstracts and determine if the thesis was connected with the area of Acquisition Management. The third step was to organize the theses into four specific categories according to subject material. The four categories are: Systems Management, Contract Management, Cost Management and Logistics Management, as related to Systems Management/Acquisition Management.

Justification

The rational for selecting the content analysis approach is that the focus of the research is to provide a compendium of topics related to Acquisition Management. It is not the purpose of this research to evaluate the merit of any previous research nor to examine the credibility of previous researchers' methods, but rather, to provide a concise

tool to be used by students . All data that is generated in this research will be nominal and treated accordingly.

The purpose of reviewing all the thesis abstracts, and not using key words to limit the scope of the review, was to ensure that this compendium is as inclusive as possible.

Decision Rule

Each of the thesis abstracts was evaluated using the following operational definitions. The definition of System Management for the purpose of my research is any topic related to the program/project management or acquisition of a military system. Program/project management is defined as the planning, scheduling, directing, and controlling of an organization's resources for a finite period of time to accomplish the organizational goal. Acquisition management is defined as acquiring by contract with appropriated funds of supplies or services (including construction) by and for the use of the Federal Government through purchase or lease, whether the supplies or services system is already in existence or must be created, developed, demonstrated, and evaluated (2). If the thesis met the operational definition then it was included in the compendium. All theses that were questionable as to whether or not they meet the operational definition were discussed with my advisor who made the final decision.

III. Systems Management

IMPORTANCE AND UTILIZATION OF SPECIALIZED COMPETENCE WITHIN A MATRIX ORGANIZATIONAL ENVIRONMENT.

Thorn, Mack J

Sep 89 AD-A215 625

ABSTRACT:

This thesis explored how the productivity of a configuration and data management division within a matrix organization can be improved and subsequently recommended strategies for increased productivity. A modified Wagner and Morse questionnaire facilitated data collection. Information and ratings were gathered through personal interviews with the configuration and data managers and their respective program managers (matched-pair) concerning specialized competence, aptitude, utilization and importance. Additionally, this study identified situational factors which may serve to increase a configuration and data manager's competence rating. Significant findings of this research were: (1) the configuration and data manager is relatively insignificant when compared to other functional program personnel; (2) there are few sufficiently knowledgeable configuration and data management personnel; (3) the program manager possesses an inadequate understanding of the duties performed by a configuration and data manager; and (4) utilization of a configuration and data manager is unrelated to the individual's competency level.

A MODEL FOR THE MANAGEMENT OF TECHNICAL RISK IN NEW TECHNOLOGY
DEVELOPMENT PROGRAMS.

King, Peter B.

Sep 89 AD-A215 624

ABSTRACT:

Inadequately managed technical risks have resulted in setbacks, failures and operational disasters in Department of Defense programs. Therefore, the purpose of this thesis was to synthesize a model that epitomizes a strategy for the management of technical risk. The model was synthesized using the three-pronged effort of: (1) a literature search and review to determine what previous work was done in risk assessment and risk management, (2) case studies of historical, contemporary and prospective new technology development programs, and (3) interviews predominately with Chief Scientists at the Wright Research and Development Center at Wright-Patterson Air Force Base. The model validation was via reviews of the model that were made by the stated interviewees. If the model is used as a technical management guide and decision aid by individual program or project managers at all levels, collective marked improvement in the technical risk management throughout the Department of Defense may be achieved.

DEVELOPMENT OF A PERSONAL COMPUTER (PC) SOFTWARE REQUIREMENTS
MODEL FOR SYSTEM PROGRAM OFFICES.

Richardson, Derrick M.

Sep 89 AD-A215 581

ABSTRACT:

This study investigated the development of an alternative PC software requirements determination model for system program offices (SPOs) within Air Force Systems Command (AFSC) to perhaps improve the current software acquisition process. The model is designed to match SPO mission objectives and functions with critical office tasks necessary to accomplish these objectives and functions. It then investigates/selects those PC software products which will best support the office task(s). This study consisted of five research objectives: 1. Determination of the effectiveness of currently available PC software applications used to support SPO tasks. 2. Determination of current processes SPOs use to identify PC software requirements. 3. Determination of methods SPOs currently use to acquire PC software products. 4. Determination of the effectiveness of present PC software requirements identification and procurement practices. 5. Determination of whether development of a tailored PC software requirements model for SPOs might improve the PC software acquisition process.

AN EXPERT SYSTEM FOR DEVELOPING A FULL SCALE DEVELOPMENT

STATEMENT OF WORK.

Dierking, Keith A.

Sep 89 AD-A215 578

ABSTRACT:

The purpose of this project is to determine the need and feasibility of developing an expert system to assist in the development of a Statement of Work (SOW) for the Full Scale Development (FSD) phase of the acquisition cycle. This project also determines the feasibility of transporting this expert system to a microcomputer. The methodology involves a six step process for developing a small scale expert system. The first step involves choosing a tool. The tool chosen for this project is KnowledgePro by Knowledge Garden. The second step involves defining the problem. Once the problem is defined, a determination is made on whether an expert system is appropriate for this project using a model developed in a previous thesis project. The third step involves developing the system. The prototype system was developed on an IBM compatible computer using the KnowledgePro development system. The fourth step involves developing a prototype system. The prototype system was developed on an IBM computer using the KnowledgePro development system. The fifth step involved expanding, testing, and revising the system. The sixth step involves maintaining and updating the system. Besides the six steps for developing the expert system, the system was validated.

FREQUENCY OF QUANTITATIVE DECISION SUPPORT TECHNIQUES USED BY AIR
FORCE SYSTEM ACQUISITION MANAGERS.

Donahue, Mark J.

Sep 89 AD-A215 577

ABSTRACT:

The main focus of this thesis was to determine if exposing an Air Force system acquisition midlevel program manager to a computer aided quantitative decision support technique in an academic environment, affected the frequency that the manager used quantitative decision support techniques in actual program and project problems. A quantitative decision support technique, decision tree analysis was taught in the Intermediate Program Management (SYS-400 Professional Continuing Education (PCE) course at Wright-Patterson AFB, OH. Before this research began, the classes were doing the decision tree calculations without the aid of a computer. This study focused on whether modifying the curriculum to teach the use of PC based decision support system (DSS) decision tree computations to program managers would effect the frequency they used quantitative techniques in addressing actual program and project problems.

PROJECT MANAGEMENT SOFTWARE: PROPER SELECTION FOR USE WITHIN
AIR FORCE SYSTEMS COMMAND.

Hartnett, Robert J.

Sep 89 AD-A215 575

ABSTRACT:

The purpose of this study was to determine what project management software systems are available to AFSC project managers, and to determine which of these systems are most appropriate for AFSC use. The study had three basic objectives: 1. Assessing the information processing deficiencies and desires of AFSC project managers. 2. Generating a flexible project management software evaluation methodology that could be used for this and future evaluations. 3. Determining which one or group of project management software systems would best meet these information needs.

A THEORETICAL FRAMEWORK FOR DEFENSE ACQUISITION ANALYSIS.

Spanier, Lee J.

Sep 89 AD-A215 549

ABSTRACT:

This study develops a theoretical framework for conducting analyses of the defense acquisition process. The framework consists of three parts or levels of analysis. It links the symptoms of poor productivity noted by major defense studies to weaknesses in social decision making processes. Using a transactional perspective, this study analyzes major program manager activities as organizational agreements. It also reviews the findings of major defense studies from this framework perspective. Key findings, based upon an application of the framework are: (1) Program manager weaknesses in management integration explain a majority of the causes for poor productivity such as cost and schedule overruns; (2) There are indications that the demand for such integration is increasing; and (3) Further, there are indications of a program manager skill deficiency in social, or group, decision making including: (a) Weaknesses in developing and maintaining agreement, (b) A lack of awareness as to what program constraints are negotiable, and (c) Difficulties bridging a gap between authority and responsibility.

A STUDY OF THE ATTITUDES OF ACQUISITION MANAGERS AND ENGINEERS
AT AERONAUTICAL SYSTEMS DIVISION AND SPACE SYSTEMS DIVISION.

Pearson, Steven L.

Sep 89 AD-A215 548

ABSTRACT:

Air Force junior officers in the 27XX (acquisition manager) and 28XX (engineer) career fields at Aeronautical Systems Division (ASD) and Space Systems Division (SSD) were surveyed to determine various attitudes toward their jobs. The purpose behind examining the job attitudes at ASD and SSD was to determine if the matrix organization at ASD was aiding in the retention of engineers and increasing the overall job satisfaction of Air Force junior officers in these two fields. It was hypothesized that ASD was better at distinguishing the engineering and management backgrounds of its officers through use of the matrix organization and that officers in jobs more closely related to their education and background would report more positive career intentions. The matrix organization at ASD attempts to match engineer and acquisition manager personnel to jobs which are closer to their backgrounds and education while SSD makes much less of a distribution between the two career fields.

NAVY JOINT ACQUISITION PROGRAM MANAGERS: IS THEIR TRAINING
ADEQUATE FOR THE JOB THEY ARE TASKED TO DO?

Rhea, Russell H.

Sep 89 AD-A214 949

ABSTRACT:

This study investigated the question of whether the training Navy joint program managers receive adequately prepares them for the unique problems associated with joint acquisition programs. Literature was reviewed to determine the common problems confronted by joint program managers. Then, personal interviews were conducted with Navy joint managers to determine their awareness of the problems associated with joint program management. The interviews were also used to investigate the training joint managers have received, and explore areas where joint program management training might be improved. Many general and specific problems and issues were identified using qualitative and quantitative analysis. The overall conclusion of this study is that Navy joint acquisition program managers are not being adequately prepared for the job they are tasked to do. Weaknesses were identified in the current joint acquisition training being provided, and Navy personnel management policies. Specific recommendations for Navy personnel managers and training institutions are provided.

ANALYSIS OF THE FEDERAL AVIATION ADMINISTRATION'S HOST COMPUTER
ACQUISITION PROCESS AND POTENTIAL APPLICATION IN DEPARTMENT OF
DEFENSE ACQUISITIONS.

Cohen, Barbara J.

Sep 88 AD-A202 623

ABSTRACT:

The primary purpose of this investigation was to develop an acquisition management strategy applicable to DOD program management that would help program managers achieve acquisition success. A hypothesized management strategy was formulated from the exploration of the successful Federal Aviation Administration's Host computer program. This exploration used personal interviews to identify those management elements and organizational procedures perceived by the 28 respondents to contribute to Host success. The hypothesized management strategy was subsequently evaluated by experts in DOD acquisition. Through personal interviews each element in the management strategy was evaluated for necessary to achieve program success and applicability to DOD programs. The conclusions and recommendations of the study were based on the results of the DOD acquisition expert opinion survey of the hypothesized management strategy. The result was a management strategy to guide DOD program managers in achieving acquisition success that can be tailored to all programs.

FACTORS AFFECTING THE ADOPTION OF R&D PROJECT SELECTION TECHNIQUES
AT THE AIR FORCE WRIGHT AERONAUTICAL LABORATORIES (AFWAL).

Congdon, Jonathan D.

Sep 88 AD-A201 543

ABSTRACT:

Although several techniques have been developed to enhance R&D project selection decision-making in research laboratories, they have not been widely accepted by management. This research examined three aspects relating to the implementation of R&D project selection techniques at AFWAL. It examined (1) the methods used by managers to make R&D project selection decisions; (2) the attitudes and perceptions of managers toward the utility of R&D project selection techniques, and (3) the specific factors affecting the adoption of these techniques by R&D managers. Findings showed that R&D project selection techniques play a minor role in the project selection process, and that managers are generally unfamiliar with these techniques. Instead, project selection decisions are often made by top-level laboratory managers through a review process. Findings also showed that the project selection process at AFWAL is primarily driven by 'requirements pull' as opposed to 'technology push.' Factor analysis was used to identify an initial set of variables which affect management's willingness to adopt R&D project selection techniques. These variables were factored into two groups: (1) the impact of formal project selection techniques on organizational decision-making; and (2) the characteristics of the project selection techniques themselves. The results showed that the respondents possessed negative perceptions toward the utility of these techniques.

IMPACT OF AIR FORCE SYSTEMS COMMAND REGULATION 36-5 ON THE 27XX
CAREER FIELD.

McConnell, Reed J.

Sep 88 AD-A201 516

ABSTRACT:

The purpose of this research was to determine if the attitudes of acquisition managers have changed over the past year, with respect to the Acquisition Manager Career Development Program, set forth by Air Force Systems Command Regulation (AFSCR) 36-5. A survey approach was used to compare the attitudes of junior (Air Force Specialty Code 2724) and senior (Air Force Specialty Code 2716) officers in relation to the criteria specified in the regulation. The results were then compared to the results of a previous survey to measure changes over time. Both surveys found generally a positive relationship between the attitudes of acquisition management personnel and career development in all areas investigated. These areas include: 1) specialty training, 2) academic background, 3) professional military education, 4) operational experience, and 5) different types of acquisition management experience. Not only were the responses from the previous survey to the current survey similar, the attitudes of junior and senior personnel were also comparable.

CONFLICT HANDLING STYLES AND PROJECT MANAGER EFFECTIVENESS.

Wardlaw, Stephen P.

Sep 88 AD-A201 492

ABSTRACT:

The purpose of this thesis was to determine the conflict handling styles of effective and less effective project managers. The project managers in this study, both military and civilian, worked in an Air Force matrix organizational structure. Since the study used a hierarchical or 'top-down' and 'bottom-up' approach in order to obtain multiple measures of the project managers' conflict handling styles and effectiveness, it included not only project managers, but their superiors, and the functional personnel who worked with the project managers. The superiors who participated in this study were the organization's senior level managers. Two notes of caution need to be made about this study. (1) the number of project managers was small. This limitation was due to the incompatibility between the amount of time it takes to collect sufficient data from three organizational levels and the short nature of this masters program. (2) the organization chosen was unique in that it was composed primarily of young and relatively inexperienced project managers. This study demonstrates that effective project managers tend to use the integrating style for handling conflicts with their superiors, other project managers, and their functional personnel, and that the less effective project managers do not. This finding was based on the superior' and functionals' perspectives of the project managers styles, not from self reporting. The self reporting of conflict handling styles showed no significant differences.

A STUDY OF PROGRAM MANAGER EFFECTIVENESS AND RISK TAKING PROPENSITY.

McIntyre, Timothy P.

Sep 88 AD-A201 489

ABSTRACT:

The purpose of the thesis was to determine if there was a relationship between program management effectiveness and risk taking propensity. Air Force supervisors classified the program managers as more effective and less effective. Using a number of risk measures and non-parametric statistical techniques, the study concluded that more effective program managers consistently rated higher on the risk measures than their less effective colleagues. Additionally, using a risk behavior model developed in previous research, the more effective program managers were labeled as exhibiting risk taking behavior by their supporting functional personnel and the less effective program managers were rated by their supporting functional personnel as exhibiting risk neutral behavior.

INTRODUCTION TO ACQUISITION MANAGEMENT.

Adler, Terry R.; Keucher, Ernest R.

Dec 87 AD-A194 606

ABSTRACT:

The purpose of this manual is to review the latest DOD and Air Force directives, instructions, and regulations as an introduction to the system acquisition process. The manual provides a broad perspective of the system acquisition process and then expounds on the major functional areas in the process.

THE COMMUNICATION OF THE USER'S REQUIREMENTS TO THE SYSTEM
PROGRAM OFFICE DURING THE ONGOING SYSTEM DEVELOPMENT PROCESS.

Smariga, Russell B.

Sep 87 AD-A188 046

ABSTRACT:

Air Force acquisition program management officers (n=292) were surveyed to determine which factors in the user to system program office requirements communication process were related to achieving effective communication. Using command representatives (n=17) working at Aeronautical Systems Division were also contacted to provide their perspective of the communications process. Results obtained from reading the comments on the questionnaires and from the interviews indicated that both program managers and user representatives believed that additional operational experience on the part of acquisition management personnel would enhance the requirements communication process. The analysis of the data, however, did not support this. Operational experience of the program manager was not statistically related to any of the measures of successful communications. Program managers who had completed AFIT Systems 100 tended to have a more positive outlook on both the desirability of having a user representative in the SPO, and of the overall requirements communication process.

PRELIMINARY AND CRITICAL DESIGN REVIEW PROCEDURES AND EFFECTIVENESS.

Bennett, Rodney

Sep 87 AD-A187 991

ABSTRACT:

This investigation examined the preparedness of Preliminary Design Review (PDR) and Critical Design Review (CDR) participants. Background and opinion data were gathered from junior and senior program managers and development engineers in order to assess their perception of PDR and CDR purposes, effectiveness/efficiencies, training and guidance. The analysis was accomplished by sending a survey instrument to a sampling of program managers, and development engineers throughout the Air Force population within the borders of the U.S.A. The respondents tended to be in agreement with the PDR/CDR purposes stated in Mil Std 1521B. The analysis revealed that most PDR/CDRs are not as effective as these could be. The primary reason is the lack of knowledge on what should be accomplished by the participants. Most respondents claimed self teaching as the method of learning their preparation for PDR/CDRs. Over 86.2 percent of all respondents felt initial training would be useful and the majority indicated 6 to 12 months of acquisition.

THE DEVELOPMENT OF A NORMATIVE ACQUISITION DECISION MAKING MODEL
INCORPORATING DECISION ANALYSIS PRINCIPLES.

Parsons, Thomas M.

Sep 87 AD-A187 863

ABSTRACT:

Program managers are faced with the task of integrating a complex mix of goals, objectives and procedures from four sub-processes within the major weapon system acquisition process. These sub-processes include needs determination, budget, acquisition management, and contract. To be effective in this organizational situation, the program manager requires a framework to efficiently guide decision making efforts. This study develops a normative decision making model to guide program managers in dealing with this complexity. Decision analysis techniques were integrated into the model to structure the decision making process to efficiently generate relevant information in a form to maximize its utility to the organization as a whole. The case study evaluated Air Defense Fighter program documentation to ascertain applicability of the model. Analysis showed that a valid normative model can be developed for use by a program manager working in a bureaucratic organization; that the various sub-processes generated some of the information required by decision analysis techniques, but that information regarding organizational values and assessments of future uncertainty and risk were not used or requested; that coordinating activities were a critical part of efforts to reach consensus concerning goals, objectives, etc.; and the sub-processes did not provide an overall coherent decision making structure.

TECHNICAL COMPETENCE OF AIR FORCE ACQUISITION PROGRAM MANAGERS.

Miller, Kurt A.

Sep 87 AD-A187 270

ABSTRACT:

This study explored how perceived technical competence of Air Force acquisition program managers is related to academic education and intrinsic technical aptitude. Technical competence was defined as the program manager's ability to assimilate technical program information and effectively factor it into his decision making at a level commensurate with his position. This study also attempted to identify situational facts which might increase the importance of a program manager having a high level of technical competence. Data was collected through personal interviews with officers in AFSC 2996 Program Manager positions and their technical advisors. Key findings were: (1) program manager technical competence is significantly related to educational background; (2) one third of the program managers interviewed do not meet prerequisites for entry into that specialty; (3) System Program Office direction calls for a higher level of technical competence than other 2996 jobs; and (4) technical ability should be a consideration in the new Acquisition Management Career Development Program selection process.

HISTORY OF CONCURRENCY. THE CONTROVERSY OF MILITARY
ACQUISITION PROGRAM SCHEDULE COMPRESSION.

Foote, Wayne C.

Sep 86 AD-A174 641

ABSTRACT:

Although concurrency is well known among acquisition personnel because of the controversy surrounding its principle application--overlap of development and production--little documentation exists concerning the strategy's history or current implementation on Air Force acquisition programs. The researcher conducted a literature review which researched the history of concurrent and crash programs from World War II to the issuance of the Packard Commission Report in June of this year. This thesis focused on the management principles which were applied on concurrent acquisition programs. The researcher also interviewed twenty managers assigned to Air Force Systems Command's Aeronautical Systems Division (ASD), who were involved in concurrent programs. The interviews focused on the effects of concurrent weapon system acquisition, and the manager's personal opinions concerning the strategy. The results of the literature review indicate that the meaning of concurrency has degraded from a specialized management approach applicable to only the highest priority weapon system acquisitions, to a generic phrase indicating only overlap of development and production phases.

AN INVESTIGATION INTO THE EFFECT OF THE MODE OF PRESENTATION ON
CONTRACT EVALUATION WHEN COST/SCHEDULE CONTROL SYSTEM
CRITERIA IS USED.

Grigware, Denise K.

Sep 86 AD-A174 372

ABSTRACT:

This thesis focused on which mode of presentation, tabular or graphical would be more effective in aiding a program manager in his evaluation of a contractor's performance when cost/schedule control systems criteria is used. Effectiveness was measured in terms of decision quality, speed, confidence, and difficulty. A review of the literature in this area identified several variables that might effect an individual's performance when a particular mode of presentation is used. These variables include the task to be accomplished, field independence/dependence, and experience. Two test scenarios were designed to test the individual's ability to detect trends, come up with precise numbers, and evaluate a contractor's performance using graphical or tabular information. The scenarios were administered to individuals who are or will be involved in the acquisition process. The Group Embedded Figures Test was administered to these subjects to determine if the individual was field independent or dependent. A questionnaire was also developed to collect background information. A statistical analysis of the data collected indicated that the task to be accomplished had a large effect on which mode of presentation was most effective. Tabular information was best when accuracy was desired, and graphical data was best when trends needed to be analyzed.

A COMMERCIAL MICROCOMPUTER DECISION SUPPORT SYSTEM FOR THE AIR
FORCE RESEARCH AND DEVELOPMENT PROJECT MANAGER.

Thomas, Phillip A.

Sep 86 AD-A174 356

ABSTRACT:

The purpose of this investigation was to locate, acquire and test realistically a commercial microcomputer decision support system (DSS) for the Air Force project manager. Only commercial microcomputer DSSs were considered in an effort to demonstrate the cost savings that could be possible by using off-the-shelf software for a dedicated application instead of engaging in an expensive software development project. A realistic test was achieved with actual project data collected specifically for a detailed project selection decision, which provided a specific utility assessment, and by managerial use of the DSS which provided a general utility assessment. The specific utility assessment identified some limitations with this system. The general utility assessment suggests this system provides useful managerial decision aid in many decision situation involving predetermined alternatives.

ASSESSMENT OF THE TECHNICAL TRAINING RECEIVED BY SOURCE SELECTION
PARTICIPANTS IN AIR FORCE SYSTEMS COMMAND.

Roberts, Charles E.

Sep 86 AD-A174 294

ABSTRACT:

Source selection is an important and complex part of the Air Force acquisition process and requires the skills and talents of many Air Force Systems Command (AFSC) personnel. This research assessed the preparedness of AFSC source selection participants. In particular, technical panel members were surveyed to determine how prepared they were for their participation in the technical evaluation of contract proposals. The key issues addressed were the preparedness of the source selection participants and the availability and benefit of source selection training. This investigation was accomplished by sending a survey questionnaire to source selection participants in the six Air Force Systems Command product divisions. The results show that 75 percent of the technical training had not received any formal source selection training prior to their first source selection. The majority of the technical panel members felt technically qualified to accomplish the technical evaluation required during the source selection. However, they felt additional training on general source selection procedures would be beneficial. Key topics recommended for training included instructions on the application of evaluation criteria and standards, and instructions on completing source selection forms.

A COMPARISON OF THE MATRIX AND FUNCTIONAL FORMS OF
ORGANIZATIONAL STRUCTURE.

Ewing, John E.

Sep 86 AD-B106 953

ABSTRACT:

The study's purpose was to compare the matrix form of organizational structure to the functional form. The study pursued the research areas of quality of work life, individual efficiency, and organizational adaptability. The hypotheses tested in support of quality of work life included job satisfaction, opportunity for advancement, perceived recognition, and intent to remain. The research goal of individual efficiency was tested by individual performance. The research goal of organizational adaptability was tested by individuals' perceptions of division of labor, impersonality of the organization, participation in decision making, hierarchy of authority, and the formalization of the organization. Only two hypotheses were accepted allowing the inferences that the matrix form is perceived as providing more recognition and is less of an impersonal organization.

A MODIFICATION TO THE COMPUTER GENERATED ACQUISITION DOCUMENTS SYSTEM
FOR MICROCOMPUTER USE IN A PROGRAM OFFICE ENVIRONMENT.

Zabker, Lynn M.; Zimmerman, Karen M.

Sep 85 AD-A162 273

ABSTRACT:

The Computer Generated Acquisition Documents System (CGADS) was designed to assist the program manager (PM) in developing acquisition documents including SOWs and CDRLs for all phases of the acquisition cycle. CGADS will produce draft versions of these documents which must then be tailored to meet the needs of the particular program. The current CGADS has several shortfalls. PMs outside of ESD have difficulty accessing the system. The system must also be maintained on a mainframe computer since it requires too much disk space to be adapted to a micro-computer. Finally, the output obtained from CGADS is not in the Work Breakdown Structure (WBS) format required by the military handbook on SOW preparation. The main objective of this research was to simplify the PM's job in writing a FSD SOW/CDRL. This was accomplished by developing a system called Micro-Computer Generated Acquisition Documents System or MGADS. MGADS was developed to overcome the shortfalls of CGADS. Attention was focused only on the FSD SOW/CDRL to allow the program to fit onto a micro-computer. This also eliminates the problem of having to access CGADS over modem/telephone lines. The output of MGADS was restructured into WBS format in accordance with the current military handbook. MGADS is an interactive system used to develop a draft version of the FSD SOW/CDRL.

AN EXAMINATION OF THE LIFE SUPPORT EQUIPMENT DEVELOPMENT
AND ACQUISITION PROCESS.

Moyer, Jeffrey J.

Sep 85 AD-A162 241

ABSTRACT:

This thesis examined the process of live support equipment development and acquisition. This research identified how the present process works, and the problems of the process. The research was limited to the development and acquisition of life support equipment for tactical aircraft. However, most of the problems and steps of the process are shared by life support equipment programs for other users. The process was determined by referring to applicable regulations and interviewing people involved in the process. Problems were identified by asking for them during the interviews, and by examining the process as a whole. Seven problems are identified, of which five are considered correctable in the current defense acquisition framework. Four of the five problems deal with the management of the acquisition and development process, and combined the problems indicate the lack of an integrated approach to the acquisition and development process. Solutions were developed from suggestions obtained during the interviews and through qualitative analysis of the problems. The results of this examination indicate that problems exist in the life support equipment development and acquisition process and that the development of an integrated process is necessary to solve these problems. An integrated solution is proposed in the recommendations.

WEAPON SYSTEM SOURCE SELECTION: AN ASSESSMENT OF AIR FORCE
SOURCE SELECTION APPROACHES.

Gray, Robert O.;Hugo, Jeffrey D.

Sep 85 AD-A162 239

ABSTRACT:

This investigation examined the different approaches used in the Air Force source selection process. Specifically, this research surveyed the opinions of source selection personnel towards different aspects of each approach in an attempt to identify the approach best suited for varying acquisition situations. The study also accessed the adequacy of the Request for Proposal technical requirements definitions and determined the amount of source selection training personnel receive before participating in a source selection. The analysis was accomplished by sending a survey questionnaire to source selection personnel in six Air Force Systems Command product divisions. The results show that the conventional approach is the overall preferred approach. The results also show that the technical aspects of a weapon system are adequately defined for the contractor in the Request for Proposal. Finally, the results show that 89 percent of source selection personnel do not receive training prior to participating in their first source selection.

APPLICATIONS OF COMPUTERS AS AN AID TO DECISION-MAKING IN
AIR FORCE SYSTEM PROGRAM OFFICES.

Koble, Roger D.

Sep 85 AD-A161 784

ABSTRACT:

This thesis investigated the most advantageous areas for applying a decision support system to Air Force Systems Command program and project managers in System Program Offices. Data was gathered by surveying a stratified sample of program and project managers. In this research, groups of program and project managers were identified that may require different types of support based upon the influence of the groups have in the decision process in the areas of cost and budget, schedule, technical performance, logistics, and administration. The following three rank groups were chosen as the basis for evaluation of different DSS needs: Lieutenants, Captains, and Majors through Colonels. Findings indicated that all three rank groups need similar support from ann DSS development. An additional result of this empirical research was a prioritized list of program management techniques for DSS development and implementation.

INITIAL AND QUALIFICATION OPERATIONAL TEST AND EVALUATION IN THE
ACQUISITION OF NON-MAJOR COMMUNICATION SYSTEMS.

Roemish, Lorraine Y.

Sep 85 AD-A161 729

ABSTRACT:

The use of operational test and evaluation (OT&E) results in the acquisition decision-making process has been increasingly emphasized in the past years and has gained even more prominence with the establishment of the Operational Test and Evaluation Office at the Department of Defense. Special emphasis has been placed on the use of OT&E in the production decision. Initial Operational Test and Evaluation (IOT&E) and Qualification Operational Test and Evaluation (QOT&E) are the types of test and evaluation that are normally conducted on systems prior to the first major production decision in the acquisition. While IOT&E usually evaluates new systems and QOT&E usually evaluates off-the-shelf systems, they both provide program decision makers with valid estimates of operational effectiveness and operational suitability upon which they can base their decisions. This thesis has looked at how IOT&E and QOT&E reports written by the 1815th Test and Evaluation Squadron (AFCC) are used in the acquisition of non-major communication systems. The results of this research reveal that the OT&E conducted by the 1815th is usually QOT&E performed on off-the-shelf systems. Since these systems involve very little technical risk the OT&E are not usually the primary factor in production decisions. OT&E results are most useful in pointing out deficiencies requiring correction prior to fielding such systems.

STRATEGIC PLANNING WITHIN WEAPON SYSTEM PROGRAM OFFICES AT
AERONAUTICAL SYSTEMS DIVISION.

Corey, Lori A.

Sep 85 AD-A161 127

ABSTRACT:

This thesis focused on the strategic (or long range) planning approach of system program office (SPO) personnel at the Aeronautical Systems Division (ASD), Air Force Systems Command (AFSC). The research indicated that separate, distinguishable groups solely responsible for strategic planning were the exception and not the rule. The understanding of where strategic planning was accomplished for the programs varied from person to person. Specified portions of the planning process were investigated. A formal approach was followed for the economic analysis, the definition of objectives and the allocation of funds. An informal approach was followed for the requirements analysis, political analysis, threat analysis, organizational analysis, consideration of objectives prior to plan development, allocation of manpower, organizational structure, alternative courses of action, testing of planning assumptions, and testing of plans. Additionally, the research indicated that few of the plans required by regulations received wide application. More efficient resource allocation and better quality decision-making were the most common benefits of planning. The top ranked difficulties associated with strategic planning were insufficient time, unpredictable political environment, inadequately defined objectives and inexperienced managers. The research data indicated that strategic planning has been useful to the program office.

AN INVESTIGATION OF THE DECISION VARIABLES THAT AFFECT SPACE
WEAPON SYSTEM PROCUREMENT.

Paul V

Sep 85 AD-A161 093

ABSTRACT:

The full funding policy and the three year obligation availability of procurement funds were identified as the major constraints limiting program managers of space weapon systems in their acquisition activities. In order to evaluate the effect of these constraints on space weapon system acquisitions, twelve variables, identified through the literature review, were used to gain an understanding of the problem. Program managers believed that these variables created problems that could only be solved by changing the acquisition process. Personal interviews were conducted and the importance of each variable in affecting the program manager's efficiency was identified. Two data analysis techniques were used: qualitative and factor analysis. Factor analysis was conducted using the rating of importance for each variable and this lead to four underlying factors. The factor identified as limiting program managers the most was labeled program uncertainties.

PRE-PLANNED PRODUCT IMPROVEMENT: A BETTER WAY OF WEAPON SYSTEM
ACQUISITION.

Mackey, P. T.

Feb 84 AD-A153 802

ABSTRACT:

The object of this thesis was to evaluate the acquisition approach called pre-planned product improvement of P3I and the benefits it offers. First a comparison of P3I and a similar concept called Evolutionary Acquisition or EA, was made to improve understanding of P3I and how it relates to EA. It was concluded that EA, as defined, is a Command and Control (C2) specific P3I application. Then, to see if the theorized benefits of P3I actually come about, the cost and schedule performance of a P3I program was compared to that of non-P3I programs. Acquisition lengths were also compared. This comparison found that P3I man indeed lessen acquisition times and enhance cost and schedule performance.

UTILIZATION, ADEQUACY, AND IMPROVEMENTS FOR PROGRAM
MANAGEMENT TRAINING.

McGinty, P. S.

Sep 83 AD-A134 960

ABSTRACT:

Training for program management personnel in the Air Force is a key instrument in preparing members to manage major acquisitions. This thesis examines the forms of training available for personnel in program management both in and out of the Air Force. The major portion of the report examines what training is being utilized, the adequacy of this training, and the improvements that should be made to this training. The information for that part of the report was gathered through interviews with System Program Directors in the Aeronautical Systems Division and the Armament Division. Professional management views of the System Program Directors were also obtained relative to their perceptions of an ideal training program for program management personnel. Presentation of the analysis of interview data provides a one-time academic review and summary report for exchange of ideas concerning training for program management personnel.

PERCEIVED UTILITY OF THE AFIT GRADUATE SYSTEMS MANAGEMENT PROGRAM.

Speck, Ernest E.

Sep 81 AD-A109 878

ABSTRACT:

AFIT has the responsibility for providing for the education of Air Force Officers. As part of this responsibility, AFIT needs feedback from past graduates to evaluate the programs offered. This study evaluated the utility of the Graduate Systems Management program through the eyes of its past graduates. A survey was taken of Air Force officers who graduated in the classes of 1969 through 1978 with about 82% (148) of the graduates participating. In the survey, the program was described in terms of eleven specific subject areas and the graduates responded to statements for each area concerning the need for the material on the job, level of detail presented, need for more theoretical emphasis, and need for more practical applications emphasis. Overall, the responses indicated the program is meeting the needs of its graduates as all subject areas were needed to some degree. Also, the level of detail was generally sufficient. However, the balance between theoretical emphasis and practical applications leans too far toward theory.

SOFTWARE CONTROL DURING DEVELOPMENT AND ACQUISITION.

Lamkey, Robert J.;Pavy, Curtis T.

Jun 80 AD-A089 329

ABSTRACT:

The Air Force has experienced some difficulty in obtaining quality software under specified cost, schedule, performance criteria. This thesis was undertaken to explore the underlying problem and to research methods for improving Air Force software acquisitions. The literature highlighted a number of problem areas evident in Air Force and DOD in general. The major problem areas were: (1) lack of measurable milestones, (2) lack of consideration for the integration of hardware and software, (3) lack of software visibility during development, and (4) lack of user involvement. The researchers used those problem areas as a basis for conducting interviews at a major non-DOD software user/producer. The effort identifies aspects of a software control process with potential applications for Air Force use. The researchers discovered that an effective software control process is feasible, but it rests upon a realization of the unique nature of software. Also, the impact of quality assurance, user involvement, and development planning upon the final software product are discussed.

A DYNAMIC POLICY MODEL OF THE DEPARTMENT OF DEFENSE SYSTEMS
ACQUISITION PROCESS.

Kaffenberger, Susan A.; Martin, David P.

Jun 79 AD-A072 618

ABSTRACT:

The Department of Defense (DOD) weapon systems acquisition process has a complex and dynamic nature which continually challenges management's ability to develop effective policy to support decision-making. With the invaluable assistance of key managers within DOD, Office of Management and Budget, and Congress, a policy model of the process has been developed using the system dynamics concept. The formal and informal system structure and policies which currently exist for the weapon systems acquisition process are addressed in the research. The purpose of the dynamic policy model is to provide a tool to assist DOD strategic managers in understanding the complex nature of the system and to identify the most important areas that are sensitive to changes in either structure or policy. The model thus provides a device for policy development.

A PROPOSED DEFINITION AND TAXONOMY FOR PROCUREMENT RESEARCH IN THE
DEPARTMENT OF DEFENSE.

Heuer, Gerald R. J.; Kingston, John C.

Sep 77 AD-A047 281

ABSTRACT:

This proposed definition of procurement research was derived from a content analysis of the first five DOD Procurement Research Symposia (1972-76). Procurement research was found to be an applied social science using abstract/mathematical techniques, relying on historical data, and emphasizing both the acquisition and procurement processes. The general characteristics derived from the content analysis were supplemented with interviews and literature reviews to construct a procurement research taxonomy of five levels: process, phase, cycle, event, and issue. Four levels are discussed in detail. The taxonomy was combined with characteristics of the scientific method to construct an algorithm for determining whether an effort is procurement research. The taxonomy should be helpful to procurement researchers and operators to provide them with a means of focusing on key events of the procurement process.

CONFLICT IN CIVILIAN AND AIR FORCE PROGRAM/PROJECT ORGANIZATIONS:

A COMPARATIVE STUDY.

Eschmann, Karl J.; Lee, Terry, S. H.

Sep 77 AD-A047 230

ABSTRACT:

This thesis analyzed the conflict environment in Air Force System Program Office (SPO) Organizations. The objective was to compare the conflict intensities face and the modes of resolution used by Air Force program managers with those experienced by civilian program managers over the program life-cycle. These variables were measured in an Air Force sample of program using the same instrument that a civilian research team had used in a study of civilian program managers. The Air Force program manager measurements indicated that, as in civilian programs, the perceptions of the conflict intensities changed over the program life-cycle. However, when compared directly with the civilian findings, the data did not demonstrate similarities in what was changing and in which direction. Further, Air Force respondents perceived lesser overall conflict intensities than civilian managers. Differences in these changes were attributed to organizational and environmental factors. A comparison of the modes of resolution used, however, showed that both groups of managers tended to use similar means to deal with conflict.

IV. Contract Management

AN ANALYSIS OF STATUTORY REQUIREMENTS FROM THE 100TH CONGRESS ON THE USE OF FIXED-PRICE CONTRACTS FOR WEAPON SYSTEM DEVELOPMENT.

Steenbarger, David M.

Sep 89 AD-A216 421

ABSTRACT:

This study analyzed the statutory requirements from the 100th Congress on the use of fixed-price type development contracts. The goal was to determine how the military departments should further implement these requirements. The study found a definite trend from more restrictive language to more flexible language in the legislative history of all four statutes. The purpose of the legislation was to enable Congress to choose the composition of military goods and services based on relative program and military merit within the budget limitations, rather than be restricted to an existing composition because of existing fixed-price contractual commitments. Congress wanted the Department of Defense acquisition community to use a development contract structure which provided for the range of cost outcomes from the unfolding of a dynamic task. The study concluded that further implementation should be limited to defining two key terms in the statutes. Realistic pricing is the analysis that determines the financial outcomes of future events and generates a distribution of these outcomes with the probability of each occurrence. An equitable and sensible allocation of risk assumes a narrow distribution of outcomes and puts the maximum government financial liability on this distribution to exceed a high percentage of the possible outcomes.

STREAMLINING THE ACQUISITION PROCESS: SHOULD PROGRAM DIRECTORS
BE GRANTED CONTRACTING AUTHORITY?

Champlain, George F.

Sep 89 AD-A216 357

ABSTRACT:

In Air Force Systems Command (AFSC), program directors have overall responsibility for managing the acquisition of weapons systems. However, they have no contracting authority. The separation of responsibility and authority violates a basic management principle, which states that the level of responsibility and authority vested in an individual should be roughly equivalent. This situation may cause inefficiencies and undue organizational conflict in the acquisition process. The objective of this thesis is to determine whether the acquisition process can be streamlined by vesting program directors with contracting authority. Through a comprehensive mail survey of all program directors and procuring contracting officers (PCOs) in AFSC, the perceptions of the key individuals in systems acquisition were measured to determine if shifting contracting authority to program directors would improve the acquisition process. The results of the survey revealed that the present authority relationships via the matrix organization work reasonably well, and should remain intact. Both program directors and PCOs emphasized the importance of the current check and balance system. The survey also found a moderate level of conflict between directors and PCOs, and low conflict between the Government and defense contractors.

CONTRACTING AND PURCHASING MANAGEMENT IN THE
INTERNATIONAL MARKETPLACE.

Arroyo, Samuel A.

Sep 89 AD-A216 356

ABSTRACT:

As contracting and purchasing management professionals enter the 1990's, they find the marketplace for defense related and commercial products to be international. Consequently, the purpose of this research is to provide those professionals with an informative and consolidated text on the international dimension of those professions. First, this thesis examines the acquisition of foreign products by the commercial sector of industry. The reasons, problems, benefits, methods, and issues in purchasing internationally are addressed. The research then examines the marketplace for defense related products. While security assistance programs, such as Foreign Military Sales have characterized the U.S.'s international involvement in the past, there is a growing trend toward armaments cooperation with allies. Accordingly, this research focuses on international armaments cooperation. In addition, the issues of offsets, technology transfer, and concerns for the defense industrial base are addressed, since they pervade the literature on international defense programs, cultural and negotiation considerations, inherent to Governments and companies in the defense or commercial sector, are also examined.

DETERMINATION OF BASELINE DEFINITIONS FOR CONTRACTING
WORDS AND PHRASES.

Cannaday, John E.

Sep 89 AD-A216 350

ABSTRACT:

This thesis sought to explore the need for a professional dictionary of contracting terminology and to arrive at consensus definitions for 35 selected terms. This study found that the history of contracting shows a steady evolution of increased convolution. Legislative actions passed by Congress through the years provide an audit trail of a large portion of the vernacular associated with the field. This review reveals a discipline whose scope and complexity has steadily increased. Within this expansion, a contracting 'language' has emerged which has, thus far, been defined by ambiguities and incongruities brought about by the continuing expansion and dynamics of the acquisition field. One way to alleviate confusion and misunderstanding is to succinctly define the terms associated with a field and provide a baseline from which individuals can communicate. Twenty-five terms were selected for definition by combining the process of reviewing definitions currently provided in other glossaries and indices with a survey procedure for synthesizing these definitions into precise meanings based on comments furnished by a sample of experts. Definitions to the terms selected were developed and recommended for inclusion in any future dictionary of contracting terminology.

AN ANALYSIS OF THE SOURCE SELECTION PROCESS AT
AERONAUTICAL SYSTEMS DIVISION.

Rourke, Elaine C.

Sep 89

AD-A216 347

ABSTRACT:

This study was intended to identify factors which affect the length of the source selection process and to suggest changes to make the process more efficient. To accomplish this objective, interviews were conducted with Aeronautical Systems Division (ASD) contracting personnel who had recently participated in source selections. The study identified several factors which appear to be significant contributors to the length of the process. The most significant factors are lack of understanding, experience, and training; lack of teamwork; effects of ASD streamlining initiatives; excessive oversight; and unnecessary or excessive requirements. The recommendations of this study are intended to limit source selection activities to those essential to the integrity of the process, remove extraneous participants from the process, and ensure that actions are completed correctly the first time.

AN ANALYSIS OF THE LITERATURE BASE OF DEFENSE CONTRACT MANAGEMENT.

Farquhar, Mary L.

Sep 89

AD-A216 346

ABSTRACT:

The purpose of this study was to analyze the literature base of the defense contract management field. A descriptive research method was used to answer the five investigative questions. These questions addressed the major themes and neglected topics, major contributing authors, focus, perspective, and evolution of the literature. The Delphi process of questioning was used to obtain expert opinion to support the purposefulness of the study and the definitization of the investigative questions. Once the Delphi process was completed, the investigative questions were developed. The literature analysis consisted of the review of 1,131 defense contract management articles published in the National Contract Management Journal and the Contract Management magazine. The study identified the Federal Acquisition Regulation System as the most popular topic in the literature while topics of a legal nature had been neglected. The 14 major contributors had written over 50 percent of the literature, had a conceptual focus and its overall perspective was primarily editorial. The analysis of evolvement of the Contract Management magazine indicated that defense contract management had closely followed current events over the years.

GUIDE TO SPECIAL CONSIDERATIONS IN GOVERNMENT RESEARCH AND
DEVELOPMENT CONTRACTING.

Rodriguez-Morales, Oscar V.

Sep 89 AD-A216 345

ABSTRACT:

This thesis researched applicable literature on special characteristics related to Government R&D contracting. Emphasis was placed on small dollar government R&D procurement. A comprehensive literature review, together with informal interviews with contracting personnel from RADC Griffiss AFB NY were used to develop this study. The special characteristics include R&D definitions, different stages in R&D, R&D's interaction with the economy, technical considerations in R&D, R&D contract types, competition and R&D, roles of critical officers in R&D contracting, and some performance problems encountered in R&D. The research for this study showed that R&D is a fundamental component of this nation's technological leadership. Better training is required for personnel involved in R&D procurement. Contracting Officers, Program Managers, and Contract Administrators are part of a very important team which is in charge of supervising the efficiency and effectiveness of government R&D procurement. Most of the performance problems encountered in government R&D procurement can and should be resolved for its success. This study will become part of NCMA's Body of Knowledge library and it condenses the special considerations in government R&D contracting in a manner that is easily accessible to interested readers with some experience in government contracting.

A CASE STUDY OF THE PLANNING AND IMPLEMENTATION OF PRODUCTION
READINESS REVIEWS FOR SELECTED WEAPON SYSTEMS WITHIN AIR FORCE
SYSTEMS COMMAND.

Shirey, Harold D.

Sep 89 AD-A216 341

ABSTRACT:

This thesis was to determine how Production Readiness Reviews (PRR) were planned, implemented, and managed by selected programs within Air Force Systems Command. This study reviewed ten programs which recently conducted PRRs in an attempt to look at actual PRR practices and factors which influenced the selection of these practices. In addition, an attempt was made to determine whether recommendations from the DSB and GAO studies were implemented. Included in this study were reviews of PRR Plans, PRR Reports, Contract Statements of Work, and PRR briefings. In addition, key managers were interviewed for their views of the PRR process and recommendations for changes. Based on the data from this study, it was apparent that all ten programs met the basic DOD requirements for PRR implementation. However, DOD Regulations and Directives did not provide sufficient guidance on planning and managing PRRs. The result was several different planning approaches that were generally dependent on program size, cost, and complexity.

A STUDY OF THE ROLE OF RISK IN THE MANAGEMENT OF AIR
FORCE ACQUISITION PROGRAMS.

Schenning, Mark F.

Sep 89 AD-A215 430

ABSTRACT:

The objective of this thesis was to determine how and to what degree Air Force program managers evaluated the risks associated with the various program decisions in which risk assessments are mandated by federal and defense regulations or directives. This preliminary study took responses from a series of interviews with program managers to assess the program managers' knowledge of risk assessments, why they performed risk assessments, and if any relationships existed between individual backgrounds and risk taking behaviors. The research found that although the program managers in this study were all involved with risk assessments and analyses, they did not appear to be properly educated in the areas of risk and risk assessment. The managers were, however, interested in learning more about the concept of risk and strongly suggested the addition of formal course work in the area of risk management. This study also showed that differences are likely to exist between program managers possessing technical degrees (engineering, basic sciences, etc.) and those not possessing technical degrees with respect to how cost and technical risk are evaluated in various phases.

RIGHTS TO DATA DEVELOPED UNDER GOVERNMENT SOFTWARE CONTRACTS: AN
HISTORICAL ANALYSIS AND EXPERT OPINION.

Fairchild, Deborah A.

Dec 88 AD-A204 761

ABSTRACT:

The purpose of this study was to establish the historical and legal framework for current Department of Defense policies with regard to data rights to computer software developed under Government contracts. The study also assessed the effectiveness of those policies. The study found that although the legal system was slowly progressing toward copyright protection of computer software, Government policies remained essentially unchanged until the 1980's. Early in the decade, many events including the spare parts controversies, and passage of the Competition in Contracting and Defense Procurement Reform Acts instigated a flurry of policies, the latest of which were promulgated in April and June of 1988.

AN ANALYSIS OF CONFLICT OF INTEREST LAW AND THE EFFECT THOSE LAWS
HAVE ON THE POST-SERVICE EMPLOYMENT OF AIR FORCE CONTRACTING
OFFICERS AND ENGINEERING MANAGERS.

Lheureux, Richard A.

Sep 88 AD-A201 627

ABSTRACT:

This study sought to determine what effect post-employment conflict of interest law was having on incidental of conflict of interest. It surveyed active-duty Air Force contracting officers and engineering managers to determine whether post-employment restrictions were having an adverse effect on their post service employment searches. Findings include: 1) No data was available which measured the extent to which private companies, doing business with the federal government, employ former Air Force officers. 2) No data was available which demonstrates the relationship of post-employment conflict of interest and incidents of conflict of interest. 3) Active duty AF officers lack information on the nature and extent post-employment restrictions. As a result, a majority of the officers tested in this study did not score well on basic knowledge test of post-employment restrictions. 4) A majority of those officers surveyed felt post-employment restrictions are adversely affecting their post-service employment opportunities. The author recommends that the Air Force improve its post-service education programs--specifically, that the AF provide separating and retiring members with specific guidance on those restrictions which directly impact post-service employment.

AN ANALYSIS OF AIR FORCE SERVICE CONTRACT CASES APPEALED TO
THE ARMED SERVICES BOARD OF CONTRACT APPEALS.

Bowden, Diane L.

Sep 88

AD-A201 626

ABSTRACT:

The purpose of this study was to examine and qualify Air Force service contract cases appealed to the Armed Services Board of Contract Appeals. Objectives were to: 1) Determine what types of service contracts are most likely to have disputes appealed to the ASBCA; 2) List the cases and claim categories and examine cases of the predominant claim categories of the cases appealed; and 3) Determine what lessons might be learned from the cases appealed. The study found that the services with the most appeals during the five year time period included Housekeeping and Base services; followed closely by Transportation and related services; and Maintenance, overhaul, repair, and modification of systems, supplies, and equipment. The predominant claim categories included Interpretation of Contracts, Changes and Board Procedures. The lessons to be learned from the cases range from the use of better communication between government personnel and the contractor, more care should be exercised in the preparation of specifications, and performability reviews might be conducted to ensure the specifications and requirements provide a sound basis for performance.

CONTINGENCY CONTRACTING DURING LOW-INTENSITY CONFLICTS.

Mason, Robert L.

Sep 88 AD-A201 624

ABSTRACT:

The purpose of this research project was to improve the United States' ability to sustain a force during future low intensity conflicts via contingency contracting. This thesis reviewed the history of contingency contracting and researched the current state of contingency contracting to identify problems that exist. Research involved conducting interviews with experts in the field of contingency contracting. This study identifies many issues of which contingency contracting officers should be aware. In addition, this thesis recommends several changes to the Federal Acquisition Regulation to assist contingency contracting officers in performing their duties.

ANALYSIS OF THE AIR FORCE AND THE GREAT ENGINE WAR.

Mayes, Victoria M.

Sep 88 AD-A201 579

ABSTRACT:

This thesis provides a case analysis of the Alternate Fighter Engine (AFE) program to determine if competition can be successfully applied to a DOD weapon system acquisition program. The basic question was: how has the competition between Pratt and Whitney Aircraft and General Electric for the AFE developed and was it successful? The research was conducted through personal interviews with knowledgeable individuals from Pratt and Whitney Aircraft, General Electric and the Engine System Program Office. The competition as conducted on the AFE was one of the Air Force's first attempts to comply with the Competition in Contracting Act of 1984, by continuing competition into the production phase of a program. One of the reasons that this program was selected was that P&W had been the sole producer of the AF's jet fighter engines during the 1970's and 80's, and they had become non-responsive to the needs of the Air Force. Also, there was a move to enlarge the industrial base, improve reliability of engines, and reduce overall life cycle costs. The primary benefits were: better responsiveness from the contractor, more reliable engines, better and cheaper warranties, lower engine cost, and broader industrial base. The following issues were also identified: less use of available production capacity, cutbacks resulting in less surge capability, and difficulty providing proposals with numerous scenario and quantity requirements.

WEAPON SYSTEM WARRANTIES: AN EXAMINATION OF THEIR ADMINISTRATION
WITHIN THE DOD.

Ceteras, Timothy C.

Sep 87 AD-A201 503

ABSTRACT:

Warranties are required by law to be obtained on all weapon systems purchased by the Department of Defense. As a result, the three services within the DOD must face a variety of issues associated with weapon system warranties. This thesis examines the issues associated with the acquisition, enforcement, and subsequent evaluation of warranties. It then examines how each of the three services treat these issues in their supplement to the Federal Acquisition Regulation and in their primary warranty regulation. Prior to examining the foregoing issues, the thesis begins by first reviewing theoretical considerations. The issues themselves are then presented followed by their treatment by the DOD. After the examination of the issues and their treatment by DOD, recommendations are made for suggested improvements to the services' regulations. This thesis is useful in that it identifies several areas that should be addressed by the military departments in their warranty guidance. It also advances recommendations for improvements to the regulations.

CONTRACTING FOR INTERNATIONAL COOPERATIVE PROGRAMS: A STUDY OF
FACTORS INFLUENCING CONTRACTING PROCEDURES.

Fossum, Cindy L.

Sep 88 AD-B127 825L

ABSTRACT:

A method for distributing the increasing cost of developing weapon systems and the associated risk is to enter into a cooperative agreement with other nations. This puts weapon system procurement into the international arena where there are no standard guidelines. This thesis investigates contracting for international programs. A review of literature concerning international programs: legal aspects, treatment of intellectual property, third party sales, work division, cost division, funding, privity of contract, competition and use of Memorandum of Understanding. These areas were then investigated in two successful programs, the F-16 and the Multiple Launch Rocket System, to see how these programs dealt with these potential problems. The author found that some areas, such as legal aspects, are handled effectively and do not present major problems. The F-16 program broke ground in these areas and the MLRS program benefitted from the example. There are also areas where the contracting procedure must be tailored to the individual program. Funding was one of these. In other areas, problems still exist and no satisfactory solution has yet been found. It is these areas that should be the focus of further research.

ANALYSIS OF NEGOTIATION EFFECTIVENESS WITHIN AERONAUTICAL
SYSTEMS DIVISION OF AIR FORCE SYSTEMS COMMAND.

Horton, William R.

Sep 87 AD-A188 096

ABSTRACT:

This research examined effectiveness in the negotiation process within the Aeronautical Systems Division (ASD) of the Air Force Systems Command. The goals of ASD contract negotiations were identified along with the aids and constraints to effective contract negotiations. In addition, several factors which may impact negotiation effectiveness were analyzed to determine their applicability to ASD contract negotiations. The survey questionnaire was used to gather data from a random sample of 141 ASD contract negotiators and their supervisors. The negotiation personnel graded a list of possible goals and lists of aids and constraints to effective negotiation using a one to five Likert scale. The average scores were used to rank order the data for the total sample and for subgroups within the sample. For analysis, the data was sorted by position, age, and negotiation experience. The respondents also answered questions regarding factors identified by negotiation experts which may impact negotiation effectiveness.

YEAR-END SPENDING: AN ANALYSIS OF THE CONTRACTING
OFFICER'S PERSPECTIVE.

Goble, David J.

Sep 87 AD-A187 990

ABSTRACT:

The purpose of this study was to examine the perspectives of Air Force Systems Command contracting officers relative to year end spending practices, current policies, and changes needed in order to minimize waste and/or the perception of waste given that year-end spending is not necessarily wasteful. Four research questions were addressed. These were: 1) Do contracting officials agree with the causes of year-end spending identified in previous research and which of these is considered to be the most significant factor?; 2) Do policies which implement earlier (e.g. third quarter of the fiscal year) deadlines decrease the potential for waste?; 3) Are there other methods or policies which would provide better incentives for managers and contracting officials to minimize the unnecessary use of available government funds?; and 4) Would additional training of Air Force fund managers and contracting officers be beneficial in reducing the possibility of waste, and, if so, what areas should that training cover? In general, most contracting officers did agree with the causes previously identified and considered the need to obligate before expiration of funds as the most significant. Additional causes, including the complexity of the procurement environment, followed closely in the order of importance. Over 50 percent of those responding indicated that current policies do not reduce the potential waste.

A STUDY ON THE PERCEPTIONS ABOUT POTENTIAL ADVANTAGES OF FMS
(FOREIGN MILITARY SALES) AND COMMERCIAL SALES: SELLER AND
BUYER PERSPECTIVES.

Kim, Yong S.

Sep 87 AD-A187 843

ABSTRACT:

This study attempted to compare the perceptions of a buyer and seller in the Foreign Military sales (FMS) and Commercial Sales environment of a major system acquisition. Another purpose of the study was to determine if there existed any significant differences in the perceptions of the two parties. The buyer and seller were represented by a Purchaser Country Representative (PCR) and a United States Air Force Counterpart (USCP) stationed at the International Logistics Center (ILC) and Multinational Directorate (YPX) of the F16 System Program Office (SPO). The research model for this study (1985), titled A Comparison of Direct Commercial Sales and Foreign Military Sales for the Acquisition of U.S. Defense Articles and Services. Opinion data obtained from interviews with 52 USCPs and 32 PCRs were analyzed statistically as well as descriptively. Government-to-government obligation was ranked number 1 by USCP. Direct negotiation was ranked number 1 as a motivator for a purchasing country to utilize the Commercial channel for major weapon system acquisition while quick response was ranked number 1 by USCP. Two elements of the potential advantages yielded significant differences in perceptions of the two groups: logistics support for the FMS and direct negotiation for the Commercial channel.

A COMPARISON OF TRADITIONAL METHODS VERSUS LABOR STANDARDS IN THE
PRICING OF DEFENSE SYSTEMS CONTRACTS.

Marcy, Steven A.

Sep 87 AD-A186 479

ABSTRACT:

Statutory provisions now require defense contractors to submit labor performance data, as well as cost and pricing data, with defense system proposals. Air Force Systems Command (AFSC) policy further requires the use of labor performance data, by both government and contractor personnel, to price and negotiate defense system contracts. Studies indicate that effective use of labor performance data, from a defense contractor's work measurement system, can result in more reasonable cost estimates, particularly in the case of sole source contracts. The labor performance data referred to here is a part of what is commonly known as work measurement. This study examined the evolving application of work measurement in the acquisition of defense systems. The study investigated the value of work measurement programs and explored techniques for using labor performance data in pricing defense contracts. The study also compared this pricing technique with more traditional methods. As the implementation of this idea has stirred some controversy, the research also examines the issues that have arisen.

DETERMINATION OF THE AIR FORCE SYSTEMS COMMAND ACQUISITION MANAGEMENT
PROCESS ACTIONS AND TIMELINES AT THE AERONAUTICAL SYSTEMS DIVISION.

Stanhouse, Edward M.

Sep 87 AD-B116 128L

ABSTRACT:

This research focused on the weapon system acquisition contracting process at the Aeronautical Systems Division (ASD), Wright-Patterson AFB OH. This research was conducted through a literature review, survey, and guided interviews. The intent was to first determine what steps were necessary, from the authorization to proceed with an acquisition effort until the contract award, as well as to determine what guidance or aids are available at ASD for completing these actions. The second objective was to obtain completion timelines and numbers of coordination levels for each of these steps for different programs at ASD, and to determine whether an informal guidebook containing this information might be of use to program office personnel. The literature review results indicated that no single document existed at ASD that contained a generic, comprehensive listing of the steps necessary to get a program under contract, and where requirements and guidance for those steps might be found. The survey and guided interviews provided a limited number of timeline estimates for each of the steps. These estimates have been incorporated into the report according to the acquisition phase, either Concept Exploration, Demonstration/Validation, or Full Scale Development, or Production.

EXAMINATION OF NEGOTIATION TACTICS AND STRATEGIES OF AIR FORCE
LOGISTICS COMMAND CONTRACT NEGOTIATORS.

Peterson, Terry L

Sep 86 AD-A175 042

ABSTRACT:

This research examined the use of negotiation strategies and tactics by ninety-two Air Force Logistics Command contract negotiators. Ten strategies and thirty-three tactics were ranked by the negotiators according to preference and frequency of use. The negotiators also indicated strategies preferred under five situational contract variables: contract type, dollar amount, type of action, type of program, and degree of competition. The survey questionnaire method was used to gather data from Air Force Logistics Command contracting organizations at Wright-Patterson AFB OH. Frequency distributions were analyzed by use of two non-parametric statistical tests: the Kendall-W Coefficient of Concordance and the Kendall-Tau Rank Correlation Coefficient. The Kendall-W tested for overall group consensus on tactic and strategy rankings. The Kendall-Tau tested agreement between paired ranking sets of tactics and strategies. The rankings of tactics and strategies by the AFLC contract negotiators were compared with the rankings by Air Force Systems Command negotiators from a previous study. Substantial similarities were found in these areas: the ranking of tactic use by Air Force and contractor negotiators; the overall strategy use and preference rankings; the strategies preferred under various contract situations. Differences between the two commands were found in the comparison of strategy rankings by groups within demographic categories.

CONTRACTOR RESPONSIBILITY DETERMINATION BY THE SMALL BUSINESS
ADMINISTRATION AND DEPARTMENT OF DEFENSE CONTRACTING

OFFICERS: A COMPARISON AND CASE STUDY.

Delaney-Rios, Patricia E.

Sep 86 AD-A175 039

ABSTRACT:

The Small Business Administration is authorized to certify small businesses as competent with respect to all the elements of responsibility for the exclusive purpose of performing a single government contract. The SBA issues the business a Certificate of Competency (COC) which overrides the contracting officer's determination of nonresponsibility and requires award of the specific contract to the firm. The guidance contained in the SBA's Certificate of Competency Standard Operating Procedure, SOP 60 04 3, was compared with the guidance contained in the Federal Acquisition Regulation, and the Defense Logistics Agency Manuals 8300.1 and 8200.2 used by the Defense Contract Administration Service for conducting preaward surveys on behalf of Department of Defense contracting officers. The COC appeal files at the Offices of Small and Disadvantaged Business Utilization of the Office of the Secretary of the Air Force were reviewed to gain an understanding of the quantity of Air Force appeals undertaken. One COC appeal undertaken by the Air Force on behalf of an Air Force Logistics Command Air Logistics Center contracting officer and subsequently lost was selected for a case study analysis in this thesis.

ASSESSING THE IMPACT OF RECENT COMPETITION RELATED LEGISLATION ON
THE WORKLOAD OF SYSTEMS CONTRACTING PERSONNEL AT AIR FORCE
SYSTEMS COMMAND PRODUCT DIVISIONS

Presar, Mark E.

Sep 86 AD-A174 458

ABSTRACT:

Public Law 98-369, The Competition in Contracting Act and Public Law 98-72, Commerce Business Daily, were recently enacted in response to horror stories regarding the Defense Department's supposed overspending on weapon systems and support equipment acquisitions. These two laws have brought sweeping changes to the Government acquisition process, in terms of new requirements for the processing of sole source and other less fully competitive actions, and in terms of the activities required to promote, enhance and sustain competitive procurement. Although these have already been cost avoidance success stories resulting from this increased use of competition, very little attention has been given to the cost impact of the increased workload on the contracting personnel implementing the revised procedures. This thesis focused on the changes in manhours, and payroll and benefit costs, required to comply with these new laws within Air Force systems buying activities.

AN EVALUATION OF THE EFFECTIVENESS OF THE INDUSTRIAL
MODERNIZATION INCENTIVES PROGRAM (IMIP).

Spenny, David E.

Sep 86 AD-A174 374

ABSTRACT:

The Industrial Modernization Incentives Program (IMIP) is the first significant DOD attempt to provide a catalyst for defense contractors to modernize the defense industrial base. IMIP involved from the Air Force's Technology Modernization (TECHNMOD) program that was designed to reduce weapon systems cost and strengthen the industrial base. While IMIP is maturing since its 1982 beginnings, standardized criteria for evaluating its effectiveness have been lacking. This second stage of research is built upon the study completed by Cooper and Houck, measuring the effectiveness of the industrial modernization incentives program. They identified nine criteria that were validated as useful tools in evaluating the effectiveness of IMIP. During the second stage, these criteria were applied to selected IMIP projects to see if IMIP reduces weapons systems cost and modernizes the U.S. defense industrial base. The nine criteria were rephrased into nine investigative questions. Results of the research indicate that two of the nine should always be used on a selected basis depending on the project being evaluated.

ENHANCING COMPETITION THROUGH THE IMPROVEMENT OF THE DUAL SOURCING
DECISION CRITERIA AT THE AERONAUTICAL SYSTEMS DIVISION.

Little, Edwin F.

Sep 86 AD-A174 347

ABSTRACT:

Dual sourcing is a recognized method of inducing competition into the Department of Defense acquisitions. The environment in which DOD acquisition occurs has changed dramatically in the past five years. Both the executive and legislative branches of government have initiated various programs and laws all proposing to improve the acquisition process. The latest aid comes from Congress via the Competition in Contracting Act of 1984. This act philosophically changed the emphasis of DOD acquisition from the method of contracting to the market condition of full and open competition and its promotion and sustainment. This new emphasis has increased the interest in dual sourcing amongst program managers. When past dual sourcing actions are studied, the results do not consistently produce reduced costs and strengthened industrial base. Knowing what criteria best measure dual sourcing's potential to enhance competition allows DOD program managers to more effectively utilize limited resources. This thesis looked at current literature findings on dual sourcing criteria.

THE C130 HERCULES ACQUISITION PROGRAM: A CASE STUDY OF THE POTENTIAL
IMPACT OF A SYSTEM LEVEL WARRANTY APPLICATION.

Pickarz, Eugene J.

Sep 86 AD-A174 340

ABSTRACT:

This thesis was an attempt to assess the potential impact a systems level warranty could have had on the C-130 production contracts (over the last five years). Specifically, it sought to: (1) identify which types of Government changes or modifications could lead to warranty avoidance by the contractor and (2) attempted to determine what impact operational environments could have had on the C-130 (with a systems warranty). The literature review discusses the basic definition of a warranty and relevant litigation regarding warranty avoidance and breaches. Benefits from applying a system level warranty to the C-130 were identified to include: (1) Government notification (by the contractor) of new defects, (2) streamlined warranty claims during hostile operations, (3) increased reimbursements for Government repair, and (4) more definitized procedural instruction for the contractor. Conclusions drawn from the research centered around the need for written agreements to expand warranty coverage, length of warranty coverage, identifying warranty provisions during systems design, measurable and testable essential performance requirements, testing of proposed changes/modifications, increased need for extensive warranty administration and maintenance personnel awareness.

FRAUD IN AIR FORCE CONTRACTING: ARE SUSPENSION AND DEBARMENT
EFFECTIVE DETERRENTS AT BASE LEVEL?

Shuping, Robert W.

Sep 86 AD-B107 123

ABSTRACT:

This thesis examines the effectiveness of suspension and debarment as deterrents to fraud in Air Force contracting at the base level. After the pertinent background information was reviewed, data from three sources was gathered and analyzed. The first source of data were historical statistics on Air Force suspension and debarment dating from FY84 to present. The second source of data were the perceptions of 169 base level contracting officers who participated in a structured survey. The final source of data were the perceptions of suspension and debarment experts/policy makers in the DOD, HQ USAF, HQ JAG, HQ OSI, and HQ IG who participated in the informal interview. The results of the research indicate that the suspension and debarment process of the Air Force is perceived as effective, but there is room for improvement. Based on the findings and analysis, the author suggests several constructive recommendations that, if implemented, could enhance the effectiveness of the Air Force suspension and debarment process.

COST/BENEFIT ANALYSIS OF COMPLETED RIW
(RELIABILITY IMPROVEMENT WARRANTY) CONTRACTS.

Leix, Paul E.

Sep 85 AD-A161 810

ABSTRACT:

Reliability Improvement Warranties (RIWs) were implemented by the Air Force in 1974. This marked the beginning of the eight-year RIW trial period. Six major Air Force Programs have used RIWs since 1974. The Air Force Director of Contracting and Manufacturing Policy requested that the RIW trial period be ended and that the effectiveness of this program during the trial period be measured. This research project was an attempt to evaluate the costs and benefits associated with two RIWs implemented during this time period. Reliability data and maintenance man-hour values were collected on warranted equipment throughout its history of operation. Similar data was collected on equivalent non-warranted equipment for comparison purposes. The increase in reliability and decreases in expended maintenance man-hours warranted equipment was also compared to the increase in contract costs associated with the RIW. This thesis indicated that the RIW was a cost-effective tool in increasing reliability and reducing the number of man-hours required to maintain certain Air Force equipment.

AN ANALYSIS OF PRODUCTION COMPETITION AND AWARD METHODOLOGY.

Sparrow, G. T.;Stevens, J. A.

Sep 84 AD-A147 775

ABSTRACT:

The injection of competition into the production phase of an acquisition is an important issue in todays defense acquisition environment. Developing a second production source is the primary means of achieving this type of competition. Various techniques to accomplish production competition have been used with mixed results. This thesis reviews the theoretical basis for and the Government's policy regarding production competition along with the determination of second source applicability to a given program. In addition, this work reviews five methodologies for determining the award between two sources. After the award methodologies are discussed, one method (the Solinsky Technique) chosen for a more indepth analysis.

MULTIYEAR SUBCONTRACTOR SELECTION CRITERIA ANALYSIS.

Gray, D. L.; Sanders, L. W.

Sep 83 AD-A135 638

ABSTRACT:

Multiyear procurement (MYP) has been cited as an acquisition strategy used to check undesirable defense industry trends such as declining productivity, increasing weapon system costs, and declining subcontractor industrial base. The Department of Defense (DOD) has developed criteria for selecting prime contractors for MYP contracts, but no formal selection criteria have been established for selecting MYP subcontractors. The research objectives were to: (1) determine the extent that MYP contracts are used for DOD programs, (2) determine the contract and subcontractor characteristics associated with the use of MYP subcontracts, and (3) determine the selection criteria that contractors consider important when contemplating the placement of MYP subcontracts with subcontractors. Comparative analyses were performed on the rankings of 23 MYP selection criteria. The research findings were: (1) MYP is not extensively used for DOD programs, (2) a common set of MYP contract and subcontractor characteristics were identified, and (3) an overall ranking of 23 MYP selection criteria for consideration in placing future MYP subcontracts was developed.

COMPETITION IN THE ACQUISITION OF REPLENISHMENT SPARE PARTS.

Zamparelli, S. J.

Sep 83 AD-A135 562

ABSTRACT:

The use of competition is required for Government procurement, because it is believed to lead to lower prices. This research project was undertaken as a result of a recent empirical study that reported that prices do not always decrease when competition is introduced into the acquisition of replenishment spare parts. The research objectives were: to provide evidence to support or refute the expectation of price reductions stemming from competition, and to identify unique characteristics of the spare parts that might influence the magnitude of competitive savings or losses. Four years of procurement data histories for replenishment spare parts, obtained from the Air Force Logistics Command's Air Logistics Centers, provided the data utilized in the research project. Three major conclusions resulted from this study: competition leads to lower prices, prices increase when a spare part transitions from competitive to sole source acquisitions, and the prices of aircraft engine spare parts increase when competition is introduced into the marketplace. Several recommended changes and improvements to the replenishment spare parts acquisition process along with the identification of areas in need of additional research were made based upon the research findings.

MATERIAL REQUIREMENTS PLANNING (MRP) WITHIN THE DEFENSE INDUSTRY:

THE LINKAGE TO MULTIYEAR PROCUREMENT (MYP).

Edgar, D. W.

Sep 83 AD-A134 973

ABSTRACT:

Material Requirements Planning (MRP) is the consensus for a material management system in a dependent demand environment. Critics speculate that Government practices, specifically annual funding and annual contracting, preclude the use of MRP and other strategic management techniques and contribute significantly to weapon system acquisition costs. Revised multiyear procurement (MYP) policies were implemented in fiscal year 1982 to incentivize defense contractor utilization of MRP and other strategic management techniques. The objectives of this research project were to determine the status of MRP utilization within the defense industry and to ascertain the influence that the revised MYP policies exerted on the decision to acquire or enhance an MRP system. A survey of 25 defense contractors was used to accomplish the research objectives. Data analysis revealed no significant differences between defense industry and overall U.S. industry's utilization of MRP.

A CASE STUDY: AWARD FEES TO IMPROVE QUALITY.

Davis, R.

Sep 83 AD-A134 946

ABSTRACT:

The Department of Defense uses profit and other motivators to encourage contractors to build quality weapon systems. An Award Fee is one method to implement incentives for contractors by providing additional profit for a subjectively graded goal. This study analyzed two Award Fee contracts which stressed Quality in the subjective grading criteria for the Award Fee. Additionally, key government and contractor personnel associated with the Award Fee were interviewed to determine if a set of standard evaluation areas for quality were possible with future Award Fees. The study indicated that standard evaluation areas were possible, the evaluation period should be started early in the design phase to improve quality, and management must stress and promote quality consciousness throughout the company.

A MULTIYEAR PROCUREMENT FEASIBILITY STUDY FOR THE T-46A.

Crosby, M. L.; Rowland, F. W.

Sep 83 AD-B090 060

ABSTRACT:

Escalating costs and program stretchouts continue to plague new weapon systems. Annual procurement may be one possible contributor. The Carlucci Initiatives proposed actions for reducing costs and improving the defense acquisition process. Increased use of multiyear procurement (MYP) was one initiative. MYP is an acquisition strategy with only one contract. This thesis reviews both past and present MYP initiatives, analyzes possibilities of T-46A acquisition under MYP, and includes an examination of MYP criteria and submission format. Data was gathered from interviews, and from questionnaires distributed to the prime contractor, engine contractor, and potential subcontractors. Results supported previous research in these areas: the aging of the defense industrial base; large cost increases with program stretchout; cost reductions when using MYP, with advance material buys providing the greatest savings; and increased subcontractor willingness to compete for MYP savings were not supported since subcontractors estimated average MYP savings of only 3 percent for the T-46A, and the prime contractor agreed.

APPLICATION OF CONTRACTOR LOGISTICS SUPPORT AS IT RELATES TO THE
KC-10 PROGRAM.

Joering, Margaret M.

Sep 82 AD-B072 734

ABSTRACT:

The Air Force has capitalized on an existing commercial logistics support structure by using Contractor Logistics Support (CLS) for off-the-shelf or commercial derivative aircraft. Application of CLS in the KC-10 program was unusual in that the mission of the KC-10 is aerial refueling and airlift. Earlier CLS programs were for aircraft with support roles such as medical evacuation and training. This thesis traced the evolution of CLS in the Air Force and described its application in the KC-10 PROGRAM. It evaluated the success of the KC-10 program, examined the integration of military practices with commercial practices, and noted some lessons learned. The characteristics of programs in which the application of CLS is recommended are presented.

PROCURING CONTRACTING OFFICER'S PERCEPTIONS OF THE CONTRIBUTIONS
MADE TO DEFENSE COST ACCOUNTING PRACTICES BY CAS 401-416.

Simpson, Bruce E.

Sep 81 AD-A109 882

ABSTRACT:

The Cost Accounting Standards Board was created in 1970 to promulgate Cost Accounting Standards designed to improve the uniformity and consistency of defense contractors' cost accounting practices. The Board promulgated 16 Standards before it was terminated, 1 October 1980. This study was conducted to examine the effects Cost Accounting Standards 401-416 had on the cost accounting practices of defense contractors. A questionnaire was used to gather Procuring Contracting Officer's perceptions concerning these effects and a statistical analysis performed on the gathered data to determine if any statistically significant changes occurred in defense contractors' cost accounting practices. The Procuring Contracting Officers perceived that each of the 16 Cost Accounting Standards did improve uniformity and consistency of cost accounting practices.

AN ANALYSIS OF THE IMPACT OF MULTI-YEAR PROCUREMENT ON WEAPON
SYSTEM ACQUISITION.

Brearey, Jonathan L.

Sep 81 AD-A107 708

ABSTRACT:

Increasing concern over the rising costs of weapon systems and the deteriorating efficiency of the Defense industrial base has stimulated initiatives toward reducing costs and improving the capability of the U.S. Defense industry to react in times of crisis. Growing evidence indicates that these cost and efficiency problems have been caused in part, by instabilities in Government procurement programs. Specific Government practices which have contributed to these problems are unpredictable annual funding, quantity changes, and program stretchout. One approach toward reducing costs and restoring the Defense industry's health is expanded use of multi-year procurement (MYP). This research reviews many of the recent initiatives toward expanded use of MYP and analyzes the theoretical impact of multi-year commitments may have on weapon system acquisition. The author presents a comprehensive discussion of the advantages and disadvantages of MYP and produces a set of criteria which can be used to select procurement programs for multi-year contracts. These criteria are organized into a decision model which can be used to analyze a program and determine its appropriateness for MYP.

DETERMINATION OF CONTRACT SUITABILITY TO THE AWARD FEE CONCEPT.

McLelland, Holly R.; Odor, David D.

Jun 81

AD-A107 465

ABSTRACT:

The concept of the Award Fee contract has existed within the federal government since the 1950's. The Navy and the National Aeronautical and Space Administration used Award Fee contracts on a limited basis in the early 1960's. The Air Force still considered their use experimental as late as 1978. In FY 79 Award Fee accounted for 2.9 percent of all contracts over \$10,000, and totaled over \$1.5 billion. An estimate of the government's administrative costs for a moderate-sized Award Fee program was \$115,000 annually. The burden of the administrative costs is considered to be justified when the government realizes greater benefits as a result of the Award Fee provision. There is a general lack of definitive guidance for evaluating the suitability of any contract to the Award Fee concept. With no formalized guidelines for the selection of a contract, there is no objective way to judge the possible, or probable, cost to benefit ratio of a given contract.

IMPLEMENTATION OF SUBCONTRACTING PROVISIONS OF PUBLIC LAW 95-507 WITHIN
AIR FORCE LOGISTICS COMMAND AND AIR FORCE SYSTEMS COMMAND.

Graves, Shawn F.;Ritchie, William D.

Jun 81 AD-A107 450

ABSTRACT:

Following the passage of PL95-507 in October , 1978 there has been continued controversy among the lawmakers, DOD, SBA, and industry as to the overall support of the program. Especially noteworthy is the effect and utilization of the subcontracting plans required by law. This study narrows the scope of the problem to the implementation of the law through the use of the current Air Force Guidelines. The objectives are to validate the guidelines and analyze any weaknesses discovered. The researchers conclude that the current guidelines do effectively implement the law. However, it is recommended that better communication be established between contracting officials and SBA and a clarification of ambiguous and redundant wording in the guidelines be made. Additionally, both reporting and records requirements need to be standardized and new policy statements need to be incorporated into the guidelines. Specifically, guidelines 6, 7, 8, 9, 16, 23 need to be rewritten/expanded for ease of user interpretation and litigation.

AN EXAMINATION OF THE YEAR-END SPENDING WITH REGARD TO
DEPARTMENT OF DEFENSE CONTRACT AWARDS.

Farrell, James M.; Spendley, Paul K.

Jun 81

AD-A107 033

ABSTRACT:

Investigations conducted by Congress and the General Accounting Office have indicated that a number of Federal agencies, including the Department of Defense (DoD), engage in a year-end spending practice which potentially wastes billions of tax dollars annually. This practice is commonly known as year-end spending surge. The objective of this research was to analyze DoD contract award data to determine the magnitude of any year-end spending surge and to identify the types of procurement activities and the types of commodities involved in the surge. Data pertaining to DoD and Air Force (USAF) contract awards to U.S. business were analyzed for fiscal years 1977 through 1980. The authors concluded that the DoD and USAF experienced a year-end spending surge. Further, each type of procurement activity examined had a unique award pattern, and not all activities experienced a year-end surge. For the USAF, the magnitude of surge of base procurement was the major influence on the magnitude of the USAF surge. The study also includes information concerning the possible influence of appropriations and supplemental appropriations on the DoD year-end surge. Additionally, an examination of DoD award patterns from fiscal years 1952 through 1976 is presented in an appendix.

AN EXPLORATORY STUDY OF COSTS TO OPERATE GOVERNMENT-OWNED,
CONTRACTOR-OPERATED (GOCO) FACILITIES.

Bennett, William O.;Hodges, Mark L.,Jr

Jun 81 AD-A104 854

ABSTRACT:

During World War II, the U.S. Government recognized a need to expand the nation's industrial base. The government decision was to build production facilities and contract with private firms to operate them. In 1970 the Secretary of Defense issued a directive to sell many government facilities. As of 1980, 147 remained in government possession, being managed differently by each DOD component. The researchers sought to determine if management structure impacted upon operational costs of GOCOs. The researchers discovered that operational cost data were not readily available DOD-wide. A study of Army ammunition GOCOs was conducted to determine if sufficient correlation between costs of operating GOCOs could be found to justify the expense of data collection for hypothesis testing. The results of the study showed positive correlation between operation and maintenance costs of GOCOs and total costs of GOCOs. Production costs were not found to be significantly correlated to operation and maintenance costs. Evidence of a structural variable impacting upon production cost was found. The study recommended further study to refine the cost data, then further research into operational costs and management structure.

AN ANALYSIS OF THE DRAFT FOR PROPOSAL CONCEPT WITHIN
AERONAUTICAL SYSTEMS DIVISION.

McBride, James I.; Slade, Wilma F.

Jun 81 AD-A103 822

ABSTRACT:

Air Force Systems Command (AFSC) initiated the Draft Request for Proposal (DRFP) in 1977. With the advent of the DRFP, AFSC began a structured solicitation of industry feedback on planned acquisitions. The focus of this thesis is to provide a study of the DRFP concept and an assessment of its effectiveness. Research efforts involved an analysis of contracts within Aeronautical Systems Division (ASD) with follow-on interviews with contracting officers. The results of this study, even though only statistically related to ASD, provide valuable considerations for AFSC.

CONTRACT TERMINATIONS FOR DEFAULT AND CONVENIENCE.

Roche, Andrew D.;Scheidt, Theodore L.

Jun 81 AD-A103 258

ABSTRACT:

Many contract termination actions initiated because of contractor default are subsequently executed for the convenience of the Government. This may result in the loss of the Government's right to recover excess procurement costs and other damages. The research effort was designed to determine the scope of the problem and, by analyzing individual cases, to identify common elements leading to termination conversions. United States Air Force contracts over a three-year period were studied, including both those terminations for default that were appealed to the Armed Services Board of Contract Appeals and those converted to termination for convenience by negotiation at the contracting officer level. The investigation was hampered by decentralized data but some conclusions were drawn, especially that most termination conversions are negotiated at the contracting officer level. The use of data base management systems was recommended so that data could be centrally collected for further research and management of this problem area.

AN ASSESSMENT OF THE APPLICABILITY OF PRODUCTION READINESS REVIEWS
TO MULTINATIONAL COPRODUCTION PROGRAMS.

Barnett, Paul J.;Wales, Harman K.

Jun 81 AD-A103 257

ABSTRACT:

Production Readiness Reviews (PRRs) are used by the Department of Defense to reduce the manufacturing risk during a major system acquisition. Not only are domestic contractors involved in U.S. weapons acquisition, but today foreign contractors are involved as well. The success of the F-16 multinational coproduction program makes future coproduction programs a certainty. This study finds that PRRs are applicable to foreign contractors in a multi-national coproduction program. The PRR provides a one-on-one consultation between the System Program Office and the foreign contractor. This consultation can eliminate many potential problems early in the acquisition and can help ensure overall success of the coproduction program. A comparison is made between PRRs performed on foreign and domestic firms. The study finds in most cases the manufacturing areas requiring the greatest emphasis during a foreign PRR are different than those areas during a domestic PRR. The study takes a critical look at AFSCR 84-2 and makes specific recommendations aimed at making the regulation a more useful tool for foreign PRR planners.

AN ANALYTICAL EVALUATION OF PROCEDURES FOR CLOSING COST-TYPE CONTRACTS.

Bristow, Michael B.;Moad, Joseph E.

Jun 79 AD-A072 697

ABSTRACT:

Physically completed open contracts are an administrative and financial burden to the government. The Air Force had a procedure for the early closeout of cost-type contracts overage due to overhead negotiation. This procedure was superseded by an early closeout procedure subsequently published in the Defense Acquisition Regulation (DAR). The primary objectives of this thesis are to (1) compare current data to previous data which indicated that overhead negotiation was the primary reason for overage contracts to determine if this condition still exists and (2) determine if the DAR early closeout procedure is accomplishing its goal. This study concludes that: (1) negotiations of overhead continue to be the primary reason for contracts becoming overage; and (2) the DAR procedure hinders the early closeout of contracts by certain contractors who were previously agreeable to closing contracts using the Air Force procedure. The latter conclusion attributed to the increased cost risk to the contractor, It recommended that a more flexible procedure be adopted for the early closeout of physically completed cost-type contracts. This flexibility will allow procedural variations to be used as required by each particular situation.

AN EVALUATION OF CONTRACT MODIFICATION INSTRUMENTS.

Martin, James;Prigmore, Herold;Sholley, Bonnette Jun 77 AD-A044 080

ABSTRACT:

There are numerous ways to modify DOD contracts. Six basic procedures, termed instruments, are categorized for the purpose of determining which contract modification instrument was preferred by the various DOD procurement agencies, and which contract modification instrument was considered the most efficient in terms of flexibility, manageability, cost effectiveness, and timeliness. Data for the research were gathered from experienced DOD personnel from the procurement career field. Additionally, the survey data were validated by examining official DOD contract files. While there were distinct preferences among the various DOD agencies, computer analysis of the data revealed that the bilateral supplemental agreement issued under the authority of the Changes clause was the overall most preferred instrument to be used. Through the use of the Friedman Two-Way Analysis of Variance by Ranks Test and the Kendall Coefficient of Concordance Test, it was concluded that the bilateral supplemental agreement issued under the authority of the Changes clause was the most efficient contract modification instrument DOD-wide.

A FOLLOW-ON STUDY OF THE AUTHORITY RELATIONSHIPS OF CONTRACT
OFFICERS IN A PROJECT/PROGRAM MANAGEMENT ENVIRONMENT.

Buffkin, Bobby, D.; Hancock, John W.

Sep 76 AD-A032 488

ABSTRACT:

The authority relationships of the procuring contract officer (PCO) over the past few years have been clouded with confusion and conflict. The introduction of the program management concept into the systems acquisition process added a new dimension to this problem. Within the program management environment, the PCO has traditionally had to serve two managers--his functional manager and the program manager. This organizational arrangement has served in the past to create a conflict of allegiances for the PCO. The objective was to explore the authority relationships of the PCO through a replication of research reported in AD-A006 338. The contract officer's authority relationships were measured as a contrast between his relationship with the program manager and his relationship with the Directorate of Procurement and Production. These relationships were examined within the System Program Offices of the Electronic Systems Division at L.G. Hanscom Field, Mass. The study revealed no significant correlation in the two relationships. This result indicated that the PCO does perceive a difference in his authority relationships with the program manager as compared to the Directorate of Procurement and Production.

IDENTIFICATION OF PERSONAL CHARACTERISTICS OF AIR FORCE CONTRACT
NEGOTIATORS.

Novak, Theodore J.;Whitley, Russell V.

Sep 76 AD-A032 362

ABSTRACT:

This thesis focuses on the problem of identifying and rank-ordering the most important characteristics of Air Force Contract Negotiators. It addresses the underlying issue that the selection process for Air Force Contract Negotiators may be improved by identifying important personal characteristics of negotiators. The literature in the negotiation area was reviewed and then the Delphi technique for data collection was examined. The most important personal characteristics contract negotiators identified in this effort were drawn from active duty Air Force procurement personnel serving in ASD. A consensus about the most important background variables was reached using two rounds of questionnaires. Among the conclusions of this research is a contention that the Air Force needs to look at other characteristics besides education and experience when selecting their negotiators. Further, it is suggested that Air Force policy for procurement personnel needs to be modified so as to give the negotiator a distinct AFSC within the procurement career field.

VALUE PROFILE OF THE AIR FORCE CONTRACTING OFFICER.

Hopkins, Leonard E.;Scheideman, James A.

Sep 76 AD-A032 486

ABSTRACT:

The basic objective of this research was to increase understanding of the personal values of Air Force Contracting Officers. Prior to analyzing the data, the paper discussed the concept of personal values and the methodology of the research. The Rokeach Value Survey was selected for use in measuring personal values. In completing this survey, the respondent ranks two lists of value concepts by order of importance. The instrument was administered to Air Force Contracting Officers assigned to the Aeronautical Systems Division of Air Force Systems Command. By computing the Kendall Coefficient of Concordance with the results obtained from the sample, it was concluded that there existed a high degree of agreement among the contracting officers in ranking the values, indicating they share a common value system. Composite rank orders were developed for the two lists of values and represented the composite value system for the sample. The results obtained for the contracting officers were compared to the results obtained for a national sample taken in 1968. The Median Test was used to determine statistically significant differences between the two samples and, in conclusion, possible reasons were offered for the differences.

AIR FORCE PROCUREMENT CONTRACTING OFFICER'S LEADERSHIP STYLE: A
COMPARATIVE ANALYSIS OF MEASUREMENT INSTRUMENTS.

Bryant, Lucious E.;Bennett, Janiece B.

Aug 75 AD-A016 039

ABSTRACT:

The research was aimed towards determining if current leadership measurement instruments are measuring some central construct of leadership. Three measurement instruments were selected for analysis-- Ghiselli's Self-Description Inventory, Fleishman's Leadership Opinion Questionnaire and Fielder's Least Preferred Co-worker Scale. Based upon similarities in terminology concerning what they are measuring, it was felt that the results of three instruments would give a consistent description of a respondent's leadership style. A data source of Procurement Contracting Officers (PCOs) was provided for the purpose of determining if certain characteristics of leadership style were predominant among the current PCO work force. The three instruments were administered to 102 PCOs and statistical analysis of the results was performed to determine if relationships existed between the variables measured by each instrument.

THE AUTHORITY RELATIONSHIPS OF CONTRACTING OFFICERS IN A
PROJECT/PROGRAM MANAGEMENT ENVIRONMENT.

Block, John R.; Hadlow, Gordon E.

Jan 75 AD-A006 338

ABSTRACT:

The objective was to explore the authority relationship of the Air Force procurement contracting officer in the setting of a program management environment. The contracting officer's position was measured as a contrast between his relationship with the program manager and his relationship with the Directorate of Procurement and Production. These relationships of the contracting officers were explored in the program management environments in the system program offices (SPO) of the Aeronautical Systems Division at Wright-Patterson AFB, Ohio. The thesis includes a discussion of the interrelationships of authority, power, and influence.

CRITERIA FOR EVALUATING CONTRACTOR MANAGEMENT POTENTIAL DURING THE
SOURCE SELECTION PROCESS FOR THE ACQUISITION OF MAJOR WEAPON SYSTEMS.

Cormany, Timothy, P.;Donnellan, John, P.

Jan 75 AD-A006 329

ABSTRACT:

The purpose of the study was to analyze the proposition that a relationship exists between the managerial capabilities of the civilian contractor and the success of the contract. The proposition was developed which considered that a relationship exists between project success and the project management teams. Non-parametric statistics were used to test the hypotheses utilizing the management data gathered, and subjective analysis was applied to determine each contract's degree of success.

ANALYSIS OF STRATEGY AND TACTICS EMPLOYED IN CONTRACT NEGOTIATIONS.

Marshall, Harvey A.; Pratt, Robert J.

Aug 74 AD-785 957

ABSTRACT:

The study conducted in exploration into the awareness and agreement among procurement personnel regarding strategy and tactics employed in Air Force contract negotiations. The proposition concerning agreement among upper and lower level managers with regard to strategy was supported statistically, but not practically. A higher level of agreement was indicated, however, among upper level managers than lower level managers. Additional research is recommended into the impact which managers of other functional areas interfacing with procurement managers have on the strategic issues bearing on contract negotiations.

AN ANALYSIS OF THE EFFECTIVENESS AND UTILIZATION OF INCENTIVE CONTRACTS
WITH RESPECT TO THEIR INTENDED PURPOSE.

Jones, Julius E.; Pierre, Russell

Aug 69 AD-863 848

ABSTRACT:

The objectives of the thesis were to investigate the intended purpose of incentive contracts, the profit motive of industry and the distribution of actual costs under incentive contracts.

AN ANALYSIS OF THE DEPARTMENT OF DEFENSE CONTRACTOR PERFORMANCE
EVALUATION PROGRAM AS USED IN THE SOURCE SELECTION PROCESS.

Walkowski, Raymond J.;Mandigo, William D.

Aug 68 AD-848 355

ABSTRACT:

The Department of Defense Contractor Performance Evaluation (CPE) Program monitors a contractor's progress through the use of periodic reports. These reports are used by Source Selection Advisory Council (SSAC) members of the Aeronautical Systems Division to select the most qualified source for the development or production of systems/equipment. This study showed the SSAC members and CPE reporting officials consider it necessary to review cost records of potential contractors during source selection. However, it was found that the reports alone did not contain adequate information to allow the SSAC to make decisions on the cost performance of competing contractors.

V. Cost Management

REFINEMENT OF THE AIR FORCE SYSTEMS COMMAND PRODUCTION RATE MODEL.

Agena, Keith K.

Sep 89 AD-A216 354

ABSTRACT:

The AFSC's production rate model was developed in 1984 by The Analytic Sciences Corporation (TASC). In 1985, USAF Capt. Hugh Bolton addressed various shortcomings in the TASC formulation. Bolton also investigated two alternative formulations and discovered that both models provided better estimates overall than the basic learning curve model and the TASC formulation. This current effort analyzed several modifications to Bolton's original alternatives in an effort to derive better results. The first objective was to develop alternative formulations by expanding and/or altering TASC's and Bolton's formulations. These models should preserve the logic of the original formulations. The second objective was to compare the results between TASC's and Bolton's model formulations and the new alternative model formulations to determine which alternatives performed better and under what circumstances. The third objective was: 1) to investigate if statistical relationships exist for individual variables; 2) to determine which variables appear significant for different weapon systems; and 3) to identify any patterns that may exist in the occurrence of those variables. The modified formulations developed in this research outperformed the existing TASC and Bolton formulations. It was recommended that AFSC incorporate the new modified formulations into its Production Rate Model.

COST EFFECTIVENESS OF COMPOSITE MATERIALS ON THE F-15 AND F-16

AIRCRAFTS.

Bock, Diana M.

Sep 89 AD-A216 353

ABSTRACT:

This thesis sought to determine the cost effectiveness of composite materials by determining the significant cost drivers in a cost estimating model. Based on review of historical literature and interviews, it was originally suspected that composite materials were not as cost effective as metal structures in terms of maintenance manhours. The models developed in this project revealed that number of landings, flight hours, and sorties counts were the most significant cost drivers for maintaining the F-4 stabilator system, a metal structure, and the composite materials found on the horizontal and vertical stabilizers of the F-15 and F-16 aircrafts. The stabilator system on the F-4 was most respondent to the three cost drivers, as this structure required significantly more maintenance manhours than either the F-15 or F-16 parts. The F-16 horizontal stabilizer assembly was also sensitive to the cost drivers found, as this composite part had more maintenance manhours than the other three composite parts. The F-16 skins, vertical stabilizer assembly and the F-15 torque box, horizontal stabilator assembly showed that regardless of the number of landings, flight hours, or sortie counts, the maintenance manhours remained constant, within the range of data for this project. Life cycle costs; Multiple regression analysis; Aircraft maintenance manpower; Maintenance data acquisition.

THE EFFECT OF FEEDBACK ON COST PERFORMANCE REPORT UTILITY.

Anaral, Juan H.

Sep 89 AD-A216 340

ABSTRACT:

The purpose of this thesis was to assess the effect of feedback on the utility of the Cost Performance Report (CPR). The effort consisted of administering a controlled experiment to two groups: a gathering of contractor personnel and a group of Government employees. Both groups had some degree of knowledge in the area of variance analysis reporting. Each experiment consisted of two randomly assigned instruments, the feedback instrument (given to the experimental group) and the non-feedback instrument (given to the control group). The feedback used in this experiment was similar in structure to the Defense Acquisition Executive Summary Format 11, specifically as formatted in the Program Director's Assessment Review. Both of these reports are used by government offices to report contract cost and schedule information to higher levels of the government procurement community. The experiment required the subjects to perform a task similar to that performed during the preparation of a CPR and to provide a response in the form of a variance analysis. The responses were rated by three experts and the mean values of the feedback responses and non-feedback responses were tested to determine if a statistically significant difference existed between the two means.

ESTIMATING CLASS IV MODIFICATION COSTS.

Nethery, Belinda J.

Sep 89 AD-B139 352L

ABSTRACT:

The purpose of this thesis was to identify or develop a cost estimating relationship (CER) with which to accurately estimate Class IV modification costs for aircraft. Two areas were addressed. First, existing CERs were identified through contacts with operating and support cost offices throughout the Air Force and through a review of literature on the subject. Each CER was analyzed for its logical development, statistical soundness, and predictability. Second, a new CER was developed through a logical development process. Interviews were conducted to identify drivers of Class IV modification costs and the proper equation specification. Data was collected for stand-in variables used to quantify the drivers. This data was then used to fit the equation. Several different equation formulations were tested and evaluated based on their statistical soundness and predictability. The study did not result in any one equation that could be expected to accurately predict cost. What did result was the identification of the most promising of all the CERs evaluated. The recommendation is to use the updated versions of CORE and MACO and the newly developed equation for estimating.

AN ASSESSMENT OF THE COST-BENEFIT ANALYSIS METHODOLOGY USED IN
DETERMINING THE COST-EFFECTIVENESS OF THE ADVANCED FIGHTER ENGINE
WARRANTY.

Desimone, Christopher A.

Sep 89 AD-B138 743L

ABSTRACT:

The purpose of this study was to examine and assess the cost-benefit analysis (CBA) methodology used to determine the cost-effectiveness of the Advanced Fighter Engine (AFE) warranty. In order to achieve this goal, the research was divided into four distinctive research questions. First, what is the current methodology used to determine the cost-effectiveness of the AFE warranty? Second, does this methodology use current acceptable cost-benefit techniques? Third, does this methodology capture all of the quantitative and qualitative variables (i.e., cost and benefits) of present warranty guidance? Fourth, how well does the CBA methodology measure reality? To answer the four research questions above, a literature review, qualitative comparison analysis, and simulation modeling were conducted.

A SENSITIVITY ANALYSIS OF THE PRICE S AND SYSTEM-3 SOFTWARE COST
ESTIMATING MODELS.

Voss, Christina E.

Dec 88 AD-A204 762

ABSTRACT:

the purpose of this thesis effort was to perform an analysis on the PRICE S and System-3 software cost estimating models, in order to determine the domains of consistency for four software development efforts. That is, to determine the sets of inputs for which the two models provide approximately equal estimates. It was necessary to examine the inputs required to run PRICE S, to determine reasonable values for those inputs to describe the four software development efforts of increasing complexity, and to run the PRICE S model to get the estimates for performing those efforts. The PRICE S estimates were used as the baseline for the sensitivity analyses on the System-3 variables. The System-3 variables were examined and compared to the PRICE S variables. There were three types of relationships between the variables. There were some System-3 inputs that had one-to-one correspondence with PRICE S inputs, some that when combined with other System-3 inputs corresponded to a single PRICE S variable, and few that had no PRICE S equivalent.

PLANNING AND CONTROLLING THE ACQUISITION COSTS OF AIR FORCE
INFORMATION SYSTEMS.

Falkowski, Thomas J.

Dec 88 AD-A204 421

ABSTRACT:

The purpose of this thesis was to identify indicators that can be used to more efficiently control the acquisition costs of Air Force Management information systems. Statistical analysis was performed on cost data collected from Cost/Schedule Status Reports from information systems acquired under Air Force Logistics Command's Logistics Management Systems Modernization Program. Using regression analysis, an initial model was developed that showed the significance of various cost areas on contract performance. The model was then transformed and reduced, to include only those variables that added significantly to the prediction of contract performance. Based on the sample analyzed the following cost areas were identified as key indicators of contract performance: Software, Test and Evaluation, Training, and Maintenance. Although the limited size of the sample data make the results inconclusive, the methodology presented here provides a means to identify potential indicators. The goal of this research was not to provide a definitive model that would help program managers to predict contractor performance. Instead, the goal was to establish procedures or motivation, for program managers to identify key control variables that can help them to manage their programs more efficiently in a time of austere budgets and restricted manpower availability.

ANALYSIS OF THE HUMAN-SYSTEM INTERFACE USED IN THE PROGRAM MANAGERS
SUPPORT SYSTEM: SOFTWARE COST ESTIMATING AND COMPETITION
EVALUATION MODULES.

Kane, John A.

Dec 88 AD-A204 398

ABSTRACT:

This thesis analyzed the human-system interface used in the Program Managers Support System (PMSS) software. The PMSS software is planned to consist of 18 modules that will run as an integrated system on standard Air Force microcomputers. Six modules are presently in prototype form. This research analyzed the human-system interface of two of those modules, the Software Cost Estimating and Competition Evaluation program. Problem scenarios involving software cost estimation and competition evaluation were developed with the assistance of Aeronautical Systems Division (ASD) experts. Fourteen ASD program management persons were chosen as test participants (seven for each module) and attempted to work the problem scenario with the prototype software. The participants were only permitted to view the scenario and program documentation prior to the test. Their critical comments were recorded during the test session and later transcribed. Transcribed comments were categorized and compared to expert guidelines published in the literature. Finally, suggestions for improvement in the human-system interface used in these modules were drawn from this comparison.

DEFECTIVE PRICING: AN ANALYSIS OF FACTORS AFFECTING THE
SIGNIFICANCE ISSUE.

Volpe, Judith A.

Sep 88 AD-A201 584

ABSTRACT:

The Truth in Negotiations Act of 1962 was created to assure that the government obtains a fair and reasonable price for the goods and services it purchases by requiring contractors, in certain circumstances, to provide current, accurate and complete cost or pricing data with which the government can establish a negotiation position. Failure to comply with the law constitutes defective pricing which entitles the government to a dollar for dollar reduction in the contract price based on the defective amount. One of the stipulations of the law is that the amount determined to be defective must have caused a significant increase in the contract price although the term 'significant' has yet to be clearly defined. This thesis examines the issue of significance in defective pricing audits. The objective was to demonstrate that significance should be viewed in terms of the value of the contract action being audited and that allegations of a small dollar value should not be issued because they detract from the overall effectiveness of the defective pricing program. To substantiate that, manpower costs were developed using manhour estimates for the activities involved in the process: audit, analysis and negotiation, and legal review. Study results showed that the contract value of the action being audited impacted the amount of time it took to settle a case and that the value of the allegation itself had little to do with the processing time.

A STUDY OF THE EFFECT OF DUAL SOURCING ON OPERATION AND SUPPORT.

Miller, Stephen C.

Sep 88 AD-A201 511

ABSTRACT:

Past research on dual sourcing dealt with acquisition. since typically the majority of a major system's cost occurs during operation and support, this has left a large gap in the literature. Also, the impact of dual sourcing on supportability and readiness has not been examined. This thesis is a first attempt to plug that gap. This was attempted using a life-cycle cost model, through case studies, and expert opinion. Although an appropriate cost model was developed, cost data was not available to exercise it. Current database have not been in place long enough to provide the necessary data. Also many of the cost elements of interest are not collected. The literature, case studies, and experts, revealed that the primary determinant of the impact of dual sourcing on operation and support comes from the degree of configuration standardization imposed by the method used to create or maintain additional sources. For this reason experts in standardization provided a wealth of detail useful to this study. Four of the methods used to create additional sources put identical items in inventory. Form, fit, and function dual sourcing does not. If identical items are produced, there may be configuration control problems among manufactures, but competition in spare parts and maintenance can be a benefit.

COST IMPROVEMENT ANALYSIS.

Smith, Larry L.

Sep 88 AD-A200 215

ABSTRACT:

This is the course text for the AFIT Cost Improvement Curve Analysis course. The text introduces the unit and cumulative average cost improvement curve formulations, addresses the theory of the cost improvement curve and focuses on how to use the cost improvement curve in an environment of change and instability.

IDENTIFICATION AND IMPORTANCE OF FACTORS IN COMPONENT BREAKOUT AND
HIGH DOLLAR VALUE SPARE PART BREAKOUT DECISIONS.

Heitmann, Mitchell L

Sep 87 AD-A187 767

ABSTRACT:

The purpose of this study was to investigate why component breakout is not more extensively used as a cost saving technique in U.S. Air Force procurement. To accomplish this review of the literature, and component breakout documentation maintained at Aeronautical Systems Division was completed. These reviews resulted in a composite list of twelve factors used to justify a non-breakout decision. Sixteen System Program Office directors were then asked to consecutively rank the factors in order of importance to a breakout decision. A rank of one was given to the most important factor with the least important receiving a rank of twelve. Overall importance was then determined by summing the ranks given to each factor. The factor with the lowest sum was considered to be most important and so on until the factor with the highest sum was identified as the least important. A nonparametric statistical test was conducted on this ranked data to determine the level of agreement between the SPO directors of the relative importance of each factor. The results of this test indicated a high level of agreement among the SPO directors on the overall importance of each factor in a breakdown decision.

ESTIMATING TOTAL DEVELOPMENT COST OF JET ENGINES:

COMPARISON BETWEEN TWO APPROACHES

Lopez, Martiza R.

Sep 87 AD-B116 388L

ABSTRACT:

The need for more accurate estimates of total development cost early in the planning stages of the acquisition cycle, prompts the never ending search for better cost estimating relationships (CERs). In this research, an alternative way of estimating total development cost for jet engines was developed and compared to the already existing CER developed in 1982 by Birkler et al from RAND Corporation. They used one model (TOTDEVCOST model) to estimate total development cost. The rationale for using two models is that the total development cost consists of development through initial MQT and product improvement cost. If these costs are driven by different factors, then a single model would not be appropriate. The data used to develop the models was the same data used by Birkler et al in developing the TOTDEVCOST model. The data was modified, ie certain data points were removed or grouped to make the researcher's approach and RAND's approach comparable. Given the data set was changed, a new model (called DEV model) was developed that was the best model for the new data set. The DEV model represented RAND's approach.

COST ALLOCATION AND OVERPRICING OF SPARE PARTS.

Yorke, Michael O.

Sep 86 AD-A174 540

ABSTRACT:

The thesis objective was to determine if it is feasible to treat spare parts in lieu of contracts as cost objectives in government spare parts contracts. A survey instrument was constructed to help answer the research question. Survey was administered to contractor representatives of 12 major defense companies. The analysis revealed that 5 defense contractors are presently treating spare parts as cost objectives and using a type of spare parts accounting system as described in the survey instrument. The other 7 contractor respondents who do not treat spare parts as cost objectives were not favorable to this accounting treatment. Also within this group, most anticipated significant increases in accumulating contract costs in order to treat spare parts as cost objectives. The anticipated cost impact was less severe in estimating contract costs. The results of this exploratory research based on the limited data from a small number of large defense contractors supports the conclusion that treating spare parts as cost objectives is feasible for some companies. However, more detailed research is required to fully assess the impact and practicality of treating spare parts as cost objectives.

AN ASSESSMENT OF SOURCE SELECTION COST PANEL MEMBERS' PREPAREDNESS.

Babcock, Steven L.

Sep 86 AD-A174 207

ABSTRACT:

This investigation examined the preparedness of source selection cost panel members. Background and opinion data were gathered from cost panel members and other source selection personnel in order to assess the preparedness of source selection participants. The three major areas examined were source selection training, participants' preparedness, and problems encountered during source selection. The analysis was accomplished by sending a survey instrument to source selection personnel in six Air Force Systems Command product divisions. The results show that over eighty four percent of the cost panel members had never received any formal source selection training. Although the majority of the cost panel members felt prepared for their source selection responsibilities, over sixty percent felt additional cost analysis and source selection training would be beneficial. Finally, the results showed that there was no significant difference between the cost panel members' survey responses and those of the other source selection participants.

A SIMULATION TO EVALUATE MULTIYEAR PROCUREMENT ECONOMICS FOR
SPARES ACQUISITION.

Bodnar, Albert F.

Sep 85 AD-A161 739

ABSTRACT:

The purpose of this thesis was to evaluate the economics of applying the Multiyear Procurement (MYP) contracting approach on spare acquisitions. Evaluations have been performed documenting upfront savings with the use of MYP. Savings have been shown in the areas of material purchases and inflation avoidance. However, no research has looked into the downstream cost implications associated with MYP. The B-1B program issued MYP contracts to many of their spare requirements in order to obtain the expected benefits. This research concentrated on selected items covered in those contracts. The risk areas were determined to be costs associated with engineering changes, transportation, storage, program changes, and quantity adjustments. A simulation evaluated the benefit/cost relationships of MYP. Findings were that the two cost drivers in the MYP decision are the expected upfront savings compared to the expected engineering change costs. In addition, it is not the correct approach for all items. The decision must be evaluated on each weapon system program individually. The simulation model provides this capability.

AN ANALYSIS OF THE SUPPORT EQUIPMENT ACQUISITION PROCESS AND METHODS
OF IMPROVEMENT DESIGNED TO REDUCE ACQUISITION COSTS WITHIN
AIR FORCE SYSTEMS COMMAND.

L'Ecuyer, M. R.

Sep 85 AD-A160 907

ABSTRACT:

The acquisition of support equipment consumes a large portion of the defense budget. In 1984, the Air Force Systems Command spent \$1.8 billion on the procurement of support equipment. In the past, support equipment has not received proper management attention. However, people are beginning to realize that support equipment is one of the major factors affecting the maintainability and reliability of the fielded weapon system. The purpose of this thesis is to examine the support equipment acquisition process within Air Force Systems Command and methods of improvement designed to reduce acquisition costs. The thesis considers support equipment from three perspectives; in terms of the Integrated Logistics Support concept, within the framework of the weapon systems acquisition process, and finally the 'specifics' of the acquisition process. The thesis concludes with a through examination of three methods: multi-year contracting, breakout procurement, and local manufacture, presently being used within Air Force Systems Command to reduce support equipment acquisition costs. Presented are the benefits, disadvantages, and criteria for use of each method.

STATISTICAL EVALUATION OF THE EFFECTS OF SHOULD COST ON CONTRACT
NEGOTIATIONS FOR AIR FORCE AND ARMY WEAPONS SYSTEMS.

Conway, D. V.;Howenstine, M. J.

Sep 83 AD-A135 567

ABSTRACT:

This research effort is a statistical comparison of the percentage cost reductions during negotiations for contracts in which Should Cost was used and contracts where conventional cost estimating techniques were used. Should Cost contracts from the Air Force are compared with Army Should Cost contracts to detect any difference between the two diverse applications of the concept. Three hypothesis are tested. The first two are designed to determine if Should Cost has resulted in significant cost reductions for Air Force or Army acquisitions. The third attempts to detect any difference in the effectiveness of Air Force and Army Should Cost efforts. A Wilcoxon and a Mann-Whitney test both show no substantial increase in percent cost reductions, during negotiations resulting from the Air Force's application of Should Cost. Army Should Cost analyses, on the other hand, seem to yield positive results, though the data available was insufficient to permit a quantitative test. A Mann-Whitney test indicates that Army Should Cost analyses yield better results than those conducted by the Air Force.

AN ANALYSIS OF MULTI-YEAR PROCUREMENT COST ESTIMATING
METHODS AT THE AERONAUTICAL SYSTEMS DIVISION.

Sanders, Thomas R.

Sep 83 AD-A134 338

ABSTRACT:

Multi-year procurement (MYP) has been receiving increased emphasis, generated by high levels in DOD. Although the benefits resulting from MYP have been identified from many different sources, the cost savings attributed to those benefits are often difficult to identify. Cost estimates of those savings often lack credibility. This research effort examined cost estimating methods for five different MYP programs at the Aeronautical Systems Division. Reasons for cost savings are identified and those savings are quantified for each program. Similarities and differences in Program Office savings attributable to different areas (key variables) are determined and general areas of cost savings to be considered in estimating MYP are identified.

A PARAMETRIC MODEL FOR ESTIMATING THE FIRST UNIT PRODUCTION COST
OF A PORTABLE SATELLITE DATA RECEIVING STATION.

Zepka, J. M.

Sep 83 AD-B081 894L

ABSTRACT:

Great interest in cost estimation by the department of defense has been prompted by limited budgets and the growing cost of high technology. The parametric cost estimating model is a valuable tool for the development of life cycle cost for weapon systems. The objective of this research was to formulate and verify such a model for the first unit production cost if operating parameters (e.g. antenna possession accuracy, receiving dynamic range, etc.) and station physical characteristics (e.g. shelter dimensions, maximum station weight, etc.) were considered as potential cost drivers. Extensive analysis was performed to determine which of the potential cost models best represented the relationship between the cost drivers and the first unit production cost. The cost estimating models developed during this research should only be used to predict the first unit cost of portable satellite data receiving stations. Data required to utilize the cost models include known or predetermined quantitative values for antenna dimensions, number of antennas, number of receiving frequency channels, and shelter dimensions.

A COST MODEL FOR TACTICAL MISSILES.

Killingsworth, Paul S.

Sep 82 AD-B077 731L

ABSTRACT:

Cost estimates on proposed tactical missile systems are submitted to the Air Staff to be reviewed for sufficiency. These estimates are submitted in support of the program milestone decisions and the budget process. If a method of evaluating these estimates is not readily available, the review becomes very time consuming. This research developed cost estimating relationships (CERs) to facilitate the sufficiency reviews of estimates on air-launched tactical missile systems. The CERs model 4 cost elements of the system: guidance, control, and airframe; ordnance section; propulsion section; and integration and assembly. The models predict the production hardware cost of the 100th missile manufactured. The report is a complete discussion of the model development, as well as a source of missile production cost data and an example of the process of parametric cost analysis.

WEIGHTED GUIDELINES: AN EMPIRICAL INVESTIGATION OF RESEARCH AND
DEVELOPMENT ACQUISITION.

Craig, Michael R.; Pousardien, Henri J.

Sep 82 AD-A123 040

ABSTRACT:

Recent changes in DOD profit policy modified the weighted guidelines method of determining prenegotiation profit objectives. One Research and Development (R&D) contracting organization expected that this modified weighted guidelines method provided prenegotiation profit objectives that were too low to be consistent with the economic realities associated with the R&D market-place. Two research objectives were employed in this study to compare the difference between prenegotiation profit objectives and final negotiated profits for R&D contracts categorized in two groups: the R&D contracts in accordance with Defense Acquisition Circular (DAC) 76-233, and those R&D contracts in accordance with Defense Procurement Circular 76-3. The research plan was to determine if recent changes to DOD profit policy had inadvertently resulted in unrealistically low prenegotiation profit objectives. The study revealed unexpected results. The random sample of R&D contracts indicated no significant differences between the prenegotiation profit objectives and final negotiated profits using the DAC 76-23 method of computing weighted guidelines.

A COMPARATIVE ANALYSIS OF SOLE SOURCE VERSUS COMPETITIVE PRICES IN
THE ACQUISITION OF WEAPON SYSTEM REPLENISHMENT SPARE PARTS.

Brost, Edward J,

Sep 82 AD-A122 962

ABSTRACT:

Competition is the law of the land in Department of Defense procurement. Yet, buyers are continually faced with uncertainty, and the Government has no specific guidelines or firm basis for deciding when to introduce competition into the acquisition process. The overall research objective was to determine the effect of competition on the prices of weapon system replenishment spare parts. Multiple regression analysis and parametric statistical tests were used to analyze procurement history data for thirty-six replenishment spare parts, which were purchased by the Air Force Logistics Command. Price changes were attributed to three factors: inflation, order quantity, and competition. Five research hypotheses were formulated and tested to address three major research issues. Generally, the research findings contradict the results of previous empirical research and competition theory.

AN ANALYSIS OF THE PREDICTED BENEFITS OF MULTI-YEAR PROCUREMENT.

Bergjans, Steven B.; Elbroch, Lawrence J.

Sep 82 AD-A122 981

ABSTRACT:

Multi-year procurement (MYP) is a method for acquiring weapon systems over a period of several years with a single contract. The Department of Defense has identified MYP as a key initiative for improving the weapon system acquisition process. The objective of this thesis was to evaluate eight predicted MYP benefits. A survey of 34 defense contractor locations and a system dynamics model of a large aerospace contractor were used to evaluate the predicted MYP benefits. The research analysis supported the following seven benefits: modernization of plant facilities, stabilized work force, lower production costs, advanced material buys, improved surge capability, increased standardization, and improved productivity.

A LIFE CYCLE COST ANALYSIS FOR THE PROCUREMENT OF GENERAL PURPOSE
VEHICLES.

Claypool, Scott K.;Webb, Jeffery B.

Sep 82 AD-A122 883

ABSTRACT:

The Air Force procures commercial general purpose vehicles based on lowest acquisition costs, under the assumption that Operations and Maintenance (O&M) costs are the same for similar vehicle types. The assumption is made because of lack of conclusive proof that O&M costs are significantly different. This paper addresses whether the Air Force should continue the present procurement strategy, or procure vehicles based on total Life Cycle Cost (LCC) acquisition techniques. Statistical analysis indicates that LCCs of two makes of one type of commercial vehicle (pickup trucks) are not equal, based on a sample of 70 vehicles selected from six bases. The results suggest that LCC procurement strategies should be further investigated, especially for multiyear and other large scale buy programs.

AN ANALYSIS OF THE COST ESTIMATING PROCESS IN AIR FORCE RESEARCH
AND DEVELOPMENT LABORATORIES.

Scheel, Hellmut W.F.

Sep 81 AD-A110 965

ABSTRACT:

Within Air Force laboratories estimating costs for new projects can be a difficult task for the project manager. This is due to the uncertain nature of the exploratory development projects, which predominate in Air Force laboratories, and the lack of standardized guidelines or procedures to assist in the estimating. The objectives of this thesis were to: (1) Identify the techniques which are commonly used in estimating costs for exploratory development projects; (2) Identify factors which contribute to the variance between the project manager's cost estimate and the offeror's proposed costs; and (3) Identify weaknesses or limitations in the current cost estimating procedures and develop recommendations for improvement. The results indicate laboratory project managers rely almost exclusively on historical data from past projects or recent cost proposals and/or their own experience to estimate new project costs. Four major factors were identified as contributing to the variance between estimates: (1) Project managers underestimate manpower; (2) Project managers underestimate overhead; (3) Project managers are constrained by initial estimates or the availability of funds and; (4) potential offerors misinterpret the Statement of Work. Two of the major recommendations for improvement were: (1) to establish a computerized data base of past projects; and (2) to decrease the acquisition lead time.

LIFE CYCLE COSTING: A WORKING LEVEL APPROACH.

Cira, Anthony T.; Jennings, Kenneth R.

Jun 81 AD-A103 256

ABSTRACT:

Life Cycle Costing (LCC) is an attempt to integrate the concepts of reliability, maintainability, design-to-cost, and integrated logistic support into a management tool designed to aid program managers in fulfilling their system acquisition responsibilities, particularly with regard to reducing a system's cost of ownership. Increasing emphasis on LCC has resulted in a plethora of DOD/USAF directives, instructions, regulations, pamphlets, and guides. This thesis attempts to integrate the various LCC requirements, procedures, and techniques currently available from a wide variety of sources (including many unpublished documents) into a management framework that can be used by the working level program manager to implement LCC in any major system acquisition program.

DEVELOPMENT OF IMPROVED CRITERIA FOR DETERMINING THE NEED FOR
PRICING STAFF ACTION.

Martinez, Margaret A.;McConnell, Thomas J.

Sep 79 AD-A075 582

ABSTRACT:

The objective of this research was to determine whether improvement could be made in the current method of determining the need for pricing staff action. Currently, a dollar threshold is the sole criterion used in Air Force contracting and pricing offices to determine whether the price or cost analysis of a contractor's proposal should be performed by the pricing office or by the contracting office. While this sole criterion is convenient and easy to apply, it was not considered to be an effective decision rule. Interviews conducted with pricing experts in both Air Force Systems Command and Air Force Logistics Command revealed that the dollar threshold did not, in most cases, identify those contracts requiring the special expertise of the pricing offices. The research indicated that the use of a decision rule which considered the factors of type of contract, nature of buy, contracting officer skill, complexity, and contractor, in addition to dollar value would result in a more effective use of pricing resources.

A SUMMARY AND ANALYSIS OF THE LOGISTICS SUPPORT COST MODEL APPLICATION
TO THE ACF/F-16 WEAPON SYSTEM ACQUISITION.

Davis, William R.; Wysoski, John R.

Jun 79 AD-A072 592

ABSTRACT:

Department of Defense Directive 5000.2 states that Life Cycle Cost (LCC) must be considered in the acquisition of major weapon systems. One of the primary tools used in applying LCC techniques is the operating and Support (O/S) cost model. One such model--Air Force Logistics Command's Logistics Support Cost (LSC) model--has recently been employed in the ACF/F-16 acquisition program and continues to be used in managing the F-16 program. This was only the second time an O/S type model had been used in major systems acquisition; the first was the A-10. The question has arisen whether the use of an O/S type model has been effective in acquiring systems with lower operating and support cost. Research focusing on the A-10 O/S cost model use surfaced several major deficiencies. This thesis having focused on the F-16 LSC model use, indicates that improvements are necessary before the use of O/S type models can be fully effective. The results of face-to-face interviews with General Dynamics and Northrop personnel, involved in the ACF/F-16 program, provided an interesting perspective and give added credence to findings and recommendations.

A SUMMARY AND ANALYSIS OF THE INITIAL APPLICATION OF LIFE CYCLE
COSTING TECHNIQUES TO A MAJOR WEAPON SYSTEM ACQUISITION.

Bell, Archie C.;Turney, Daniel P.

Sep 78 AD-A061 304

ABSTRACT:

The first USAF major system acquisition program in which there was explicit consideration given to LCC was the A-X/A-10 Close Air Support Aircraft competition. LCC considerations were quantified using an operating and support (O and S) cost model developed under Project ABLE (Acquisition Based upon consideration of Logistics Effects). Air Force objectives in applying the O and S cost model were: (1) to encourage contractor consideration of operating and support costs in system design, (2) to aid in source selection, (3) to aid in evaluation of engineering change proposals, and (4) to aid in determining the magnitude of award fee (if any) to be granted the contractor. This research has focused on the degree to which these objectives were actually met, problems encountered in meeting them, and suggestions for improving future applications of O and S cost models in LCC programs. Several major deficiencies were discovered in data use and model application that cast serious doubt on the efficacy of this first O and S cost model application and require amelioration to avoid repetition of problems in future acquisition programs.

IDENTIFICATION AND DEFINITION OF THE MANAGEMENT COST ELEMENTS FOR
CONTRACTOR FURNISHED EQUIPMENT AND GOVERNMENT FURNISHED EQUIPMENT.

Dillard, Billy D.; Inscoe, Philip D.

Sep 78 AD-A061 300

ABSTRACT:

ASPR requires that the program manager perform a cost analysis to determine which components should be procured as GFE instead of being purchased from the prime contractor as CFE. Many cost factors contribute to the decision to provide an item as CFE or GFE. One cost that must be considered is the cost of managing the item, which includes, for example, personnel costs and government and contractor overhead costs. The authors have identified, defined, and assessed the use of relevant and practical elements of contractor and government management cost that should be considered in the CFE/GFE selection process. The study shows that the cost elements are considered important, but not frequently considered, and generally management cost analysis is inadequate.

AN ANALYSIS OF FORWARD PRICING RATES AND THEIR EFFECTIVENESS IN
INDIRECT COST MANAGEMENT.

Jones, Thomas G.;Volpe, Richard L.

Jun 78 AD-A059 307

ABSTRACT:

Overhead costs make up a substantial portion of the DOD dollars spent in the procurement of defense systems. Therefore, overhead control has become an area of special concern to government contract managers, and has spurred an increasing amount of manpower at the Air Force Plant Representatives Offices. Air Force Contract Management Division, and Contract Maintenance Center Detachments to influence aerospace contractors toward greater efficiency and effectiveness in the area of indirect cost management. This study examined the current indirect cost estimating literature and procedures for establishing forward pricing rates for indirect costs. In addition, forward pricing rate data from various aerospace contractors were analyzed to determine whether there are significant trends or patterns among the forward pricing rates proposed by the contractor, the rates negotiated or recommended by the government, and the rates actually experienced by the contractor during the time period under study. The authors found that there is not a statistically significant difference among the rates proposed by the contractor, the rates negotiated or recommended by the government, and the rates actually experienced by the contractor.

ANALYSIS AND COMPUTATION OF A BASE LABOR RATE FOR COST MODELS OF
MAJOR WEAPON SYSTEM ACQUISITION.

Knuth, Dale E.; Unger, Robert F.

Jun 78 AD-A059 184

ABSTRACT:

The purpose of this thesis was to analyze and compare the Base Labor Rate determined by the full cost approach versus the Maintenance Cost System. If the labor rates were determined to closely approximate each other, then the MCS would be an efficient way to obtain a base level maintenance labor rate. Two bases in the Southeastern United States which support transport aircraft were studied. The elements of cost which make up the Depot Labor Rate were used to facilitate the full cost of the Base Labor Rate. The elements of cost were subdivided into three categories--direct labor, indirect labor, and overhead. The summation of these elements were divided by the manhours available to determine a labor rate. This rate was compared to the rate derived from the MCS. The rates were comparable at one base, but not at the other. The results were inconclusive and further study was recommended.

THE AIR FORCE COST ESTIMATING PROCESS: THE AGENCIES INVOLVED
AND ESTIMATING TECHNIQUES USED.

Lewis, Edwin M.; Pearson, Eugene D.

Jun 77 AD-A044 101

ABSTRACT:

The Department of Defense is faced with the task of acquiring new weapon systems. These acquisitions have been characterized by a history of cost growth, while disparities exist among the cost estimates that are made by different organizations. The AF Business Research Management Center believes that few individuals have an overall, detailed perception of how the various cost estimates interrelate and this belief was substantiated by the research. An extensive literature review was accomplished. A model of the Cost Estimating Process as it appears in published sources was developed, including specific estimating techniques used. Four factors were identified which need attention if the accuracy of estimates is to be improved: (1) a standardized definition of 'accuracy'; (2) a feedback system tailored to the individual estimator; (3) a compendium of cost estimating techniques; (4) a standardized data base identifying the estimator, project, techniques used, and time frame of the cost estimate.

A MODEL TO PREDICT FINAL COST GROWTH IN A WEAPON SYSTEM
DEVELOPMENT PROGRAM.

Babiarz, Anthony S.; Giedras, Peter W.

Aug 75 AD-A016 040

ABSTRACT:

The increasing cost growth within the DOD military weapon system acquisition process has been the object of attention for many years. With limited resources and shrinking budgets a viable technique to monitor and control cost growth is needed. The reason for cost growth may be related to the elements of uncertainty within a development program. A conceptual model, previously developed to cope with uncertainties in a weapon system acquisition program, was used to determine its applicability for use in the present study. The model relates the concepts of entropy, information, uncertainty, and costs in an effort to predict final costs based on a measure of uncertainty. The measure of uncertainty is entropy, or a lack of order in the information available to the program manager. The model attempts to express final development cost as a ratio of initial cost estimates to program entropy.

A COST GROWTH MODEL FOR WEAPON SYSTEM DEVELOPMENT PROGRAMS.

Glover, William L.; Lenz, John O.

Aug 74 AD-785 438

ABSTRACT:

Much attention has been placed on cost growth in military weapon system acquisitions. The reasons for cost growth can be related to uncertainty relative to program costs, delivery dates, and product reliability. A conceptual model has been developed to cope with the uncertainties in weapons acquisition programs. The model relates the concepts of entropy, information, uncertainty and costs, predicting final costs based on a measure of uncertainty, synonymous with risk in this study. The measure of uncertainty is entropy, or the lack of order in the information available to the program manager. The model expresses final costs as the ratio of initial cost estimates to program entropy. The authors develop and refine the model for application to weapon development programs.

VI. Logistics Management

DESIGN CHANGE NOTICES IN AIR FORCE SPARES ACQUISITION.

Burns, Joseph W.

Sep 89 AD-A215 620

ABSTRACT:

A new Air Force weapon system, if delivered before the support items needed to sustain its use, is not a credible threat or deterrent. To ensure concurrent delivery of support items and the end item, provisioning data, used to initiate procurement of the support items, is processed long before production of the end item is completed. Due largely to the complexity of the new Air Force systems, changes to the design frequently occur after the original provisioning data is submitted. Design Change Notices (DCN) are used to notify the Air Force of changes that have occurred to the provisioning data. The volume of changes being submitted threatens to overwhelm the Air Force provisioning process and obviate the advantage of processing the data early to begin with. This research describes DCNs and DCN processing in the Air Force. A flow chart of the current DCN process illustrates that the process is repetitive and inefficient, but the process is inextricably linked to the Air Force provisioning data system. A new data system must be developed to solve the process inefficiencies. In addition, many DCNs that are being submitted and processed do not impact support item procurement. These must be identified and edited out rather than be processed unnecessarily.

MANAGEMENT AND SUPPORT OF COMMERCIAL OFF-THE-SHELF (COTS)

COMPUTER RESOURCES USED IN WEAPON SYSTEM APPLICATIONS.

Schumacher, Gerald A.

Sep 88 AD-A201 589

ABSTRACT:

The purpose of this thesis was to improve the AFLC commercial off-the-shelf (COTS) mission critical computer resources (MCCR) acquisition and support strategy. A review of current service and command regulations pertaining to the management and support of mission critical, automated data processing (ADP), and nondevelopmental (NDI) commercial off-the-shelf (COTS) computer resources, plus recently-completed studies on this topic (e.g., AFLC studies and GAO reports) was used to identify the advantages and disadvantages of procuring and supporting COTS computer resources. A review of the AFLCR 800-21 commercial off-the-shelf (COTS) policy revealed the support approach for COTS computer resources was similar to the support strategy used for military specified (MIL-SPEC) equipment and did not address the unique supportability requirements associated with commercial and commercial-type computer resources. Using the problems noted in the AFLCR 800-21 review, a list of critical supportability issues was developed, focusing mainly on the availability of commercial contractor logistics support. The review of the Air Force, Army, and Navy regulations revealed a number of innovative management and support policies which could be used to resolve the critical supportability issues.

EXPERIMENTAL INSIGHTS INTO THE MANAGEMENT OF RISK-RELATED BEHAVIOR.

Skibinski, Edward

Sep 88 AD-A201 572

ABSTRACT:

Research has shown that people respond in varying ways to decisions involving risk. This is of particular interest in the field of logistics. This study determined whether organizational policies which address risk can produce a significant and predictable influence on risk-related logistics decisions. Three policies which specifically addressed the elements of risk were tested for a significant influence on a logistics decision which was based on cost and reliability factors. Analysis of the responses to the experiment showed that risk significantly affected the logistics decision. Further, the research showed risk-inherent decisions can be purposely influenced by policies which address risk. However, a significant five-way interaction between the policy variable and the other decision variables demonstrated the enormous complexities involved in logistics decision making. No absolute generalizations could be made about any risk policy; the policies produced a significant difference only in certain situations involving certain variables. A policy which allowed for no uncertainty in decision outcome (thereby eliminating risk) was most consistently and universally applied.

A PERCEPTION OF THE EFFECTIVENESS OF THE ACQUISITION LOGISTICS
ALGORITHM IN MEASURING PROGRAM STATUS.

Miller, James R.

Sep 88 AD-A201 568

ABSTRACT:

This thesis analyzed the perceptions that AFLC and AFSC logisticians have of the current algorithm used to assess the logistics status of acquisition programs. The study also determined the weights that should be applied to the different Integrated Logistics Support elements in order to effectively measure the logistics status of an acquisition program. Recommendations were made to (1) change the weight assigned to the ILS elements based on program phase; (2) eliminate the Air Force Precedence score from the algorithm; (3) eliminate the program score from the algorithm. Recommendations for future research were to (1) review the issue of life cycle cost; (2) conduct a regression analysis on the algorithm to determine its effectiveness; and (3) develop a method to control the evaluator subjectivity.

CURRENT METHODOLOGIES OF IDENTIFYING R&M (RELIABILITY AND
MAINTAINABILITY) PROBLEMS IN FIELDED WEAPON SYSTEMS.

Murray, Jamison E.

Sep 88 AD-A201 540

ABSTRACT:

This thesis outlines methodologies used to identify reliability and maintainability problems in fielded Air Force weapon systems. The goal of the thesis was to provide program managers new to the R&M field an understanding of the terms, procedures, and organizations in the Air Force related to solving R&M problems in fielded weapon systems. The study examines the process of gathering data, selecting and prioritizing a list of candidate projects, and the justifying of these projects to upper management for approval to implement as an R&M improvement. It also examines the use of product improvement working groups (PIWGs), and provides examples of successful R&M programs, and the benefits that can be achieved with R&M improvements to fielded weapon systems.

A PROTOTYPE EXPERT SYSTEM FOR TECHNICAL ORDER ACQUISITION.

Harvell, James F.

Sep 88 AD-A201 490

ABSTRACT:

This research resulted in a prototype expert system for technical order (TO) acquisition. The prototype was built using VP-EXPERT and runs on the Zenith Z-248 microcomputer. The output of the prototype system consists of the contractual documentation for a TO program: verbiage for the Statement of Work, Contract Data Requirements List items, and tailoring of sections two and three of the Technical Manual Contract Requirements 86-01. The research focused on the following six areas: the applicability of expert system technology to TO acquisition tasks; The required resources, participants, goals, and problem characteristics for the prototype; the key concepts and relations of the selected domain of TO acquisition; the appropriate knowledge representation scheme and development tool; the required data structures and control strategies, and the competency and utility of the system.

USING THE LOGISTICS ASSESSMENT METHODOLOGY PROTOTYPE MODEL FOR
EDUCATION IN ACQUISITION LOGISTICS.

Malott, Dennis N.

Sep 88 AD-A201 465

ABSTRACT:

The current emphasis on reliability and maintainability has resulted in the development of several computer aided management tools. The Logistics Assessment Work Station was developed under the Logistics Assessment Methodology Prototype Program and is a computer aided tool for acquisition managers. The purpose of this study was to develop a training package to provide students in acquisition logistics the opportunity to use this methodology to assess the logistics supportability of new or existing equipment. A 5.25 inch diskette and a flow chart of procedures are included to provide students the needed information to allow them to accomplish a sensitivity analysis of a black box assembly under procurement consideration. Step-by-step instructions demonstrate the ease of use and the power contained in the LAWS algorithms to allow the user to accomplish an in-depth supportability analysis. Overall, the training package enhances the quality and depth of the acquisition logistics education by exposing the student to a real world management tool which, if used properly, can make their job both faster and easier. LAWS software is a promising tool for logistics supportability analysis of both existing and new equipment items.

THE USE OF CONCURRENCY IN THE ACQUISITION PROCESS AND ITS IMPACT
ON RELIABILITY AND MAINTAINABILITY.

Ross, John A.

Sep 87 AD-A187 030

ABSTRACT:

The use of some degree of concurrency in weapon system acquisition has become a normal mode of operation. There are several benefits and problems associated with concurrent programs. The recent elevation of reliability and maintainability (R&M) to a status equal to performance, cost, and schedule when evaluating current weapon systems has added to the list of potential problems experienced by concurrent programs. A literature review was conducted which traced the history of concurrency from the Ballistic Missile Programs to the 1986 Packard Commission Report. This review focused on the reasons for the continued discussions on the overall value of concurrency. The review also looked at the impact of concurrency on system R&M. Several factors were identified which existed in concurrent programs and showed a potential to limit system R&M. In addition the study covered the causes for the variances between the system R&M measures demonstrated in the development and operational environments. The results of this study indicate that concurrency does impact system development. However, the amount of impact and the applicability of the factors reviewed varies by program. Managers' opinions of the factors appear to be influenced by their position in the acquisition program. The causes for the disparity between field and development R&M measures, suggestions to correct this R&M problem, and recommendations to improve system R&M are discussed.

USING THE LOGISTICS ASSESSMENT METHODOLOGY PROGRAM FOR
SUPPORTABILITY ANALYSIS DURING ACQUISITION: A CASE STUDY OF THE
F-15E AN/ALQ-135 SELF-PROTECTION JAMMER.

Tovrea, Gaylen L.

Sep 87 AD-A186 474

ABSTRACT:

The purpose of this research was to demonstrate how weapon system supportability can be assessed through the use of the Logistics Assessment Methodology Program (LAMP) during acquisition and modification. The F15E's AN/ALQ-135 self-protection jammer was used as the subject aircraft subsystem in this qualitative and quantitative analysis. Reliability and Maintainability (the main factors in system supportability), general F-15 program logistics objectives, and specific AN/ALQ-135 acquisition program projections are discussed as background information. LAMP is presented as a potentially helpful decision-making aid to be used in the pursuit of AN/ALQ-135 supportability goals. In this study, an existing standard LAMP research approach was tailored to the AN/ALQ-135 scenario. The two main thrusts of this adapted methodology are an investigation of the sensitivity of supportability goals with respect to design characteristic uncertainties and a determination of supportability goal impacts due to potential changes in operational and support environments. Overall, the findings of this research indicate that the P3I design offers significant supportability improvements over its predecessor, the Band 1/2 self-protection jammer.

SUPPORTABILITY IN AIRCRAFT SYSTEMS THROUGH TECHNOLOGY AND ACQUISITION
STRATEGY APPLICATIONS.

Haley, Debra L.

Sep 87 AD-A186 465

ABSTRACT:

The importance of high reliability systems in the national defense strategy of 'force multiplier' is paramount. Currently, the Air Force had adopted Reliability and Maintainability (R&M) 2000 as a management policy to achieve high reliabilities. However, there are few methods being implemented which can improve the measures of reliability. One method used with success by satellite systems is the use of expensive, but highly reliable class S electronic parts as opposed to the class B parts used in avionics and ground electronic systems. A method for determining the improvement of systems' Mean Time Between Failure (MTBF) was developed. Additionally, the impact of improved system MTBF along with higher acquisition costs as a result of using class S parts was analyzed in a life cycle cost mode. Results obtained in this research indicate that class S parts have the potential of significantly increasing MTBF while actually lowering life cycle costs. Recommendations for follow-on research are given.

THE IMPACT OF R&M 2000 ON THE ATF PROGRAM

Elvebak, Martha H.

Sep 87 AD-B117 257L

ABSTRACT:

Historically, the acquisition process paid far more attention to weapon system performance and cost than to reliability and maintainability (R&M). R&M were not seriously addressed until full scale development and then were frequently traded off against other performance, cost, and schedule constraints. Decisions made during the concept exploration and Dem/Val phases drive the cost and characteristics during the entire life cycle of the weapon system. R&M 2000, a renewed commitment to R&M, places these issues coequal with cost, schedule, and performance. However, many defense industry watchers expect the Air Force to continue trading off R&M for more system capability. This study reviews the advances in R&M to identify the climate which generated R&M 2000. The Air Force's commitment to R&M is explored by comparing pre and post- R&M 2000 programs (the F15A and ATF respectively). R&M similarities and differences in these two programs are discussed. Whether R&M will continue to be traded off for cost, schedule, and other performance characteristics cannot yet be determined. However, no determination is possible as to whether R&M 2000 will result in more reliable and maintainable aircraft in the field. Further research will be necessary to determine ATF field R&M statistics.

DEVELOPING SOURCE SELECTION EVALUATION CRITERIA AND STANDARDS
FOR RELIABILITY AND MAINTAINABILITY.

Harnen, Daniel E.

Sep 85 AD-A161 030

ABSTRACT:

This thesis studied the development of source selection evaluation criteria and standards for reliability and maintainability. The data base consisted of information obtained during personal interviews with personnel from Air Force Acquisition Logistics Center. Those interviewed were experienced in the development of source selection criteria and standards for reliability and maintainability. Reliability and Maintainability (R&M) issues have become the prime focus of attention within the Air Force in the development and acquisition of major weapon systems. T&M considerations must be continuously addressed to insure readiness of our Air Force. A weapon system must be able to perform with consistent reliability and be designed for efficient and effective maintainability.

ACQUISITION LOGISTICS CONSTRAINTS AND RECOMMENDED SOLUTIONS:

PERCEPTIONS OF SENIOR DEPUTY PROGRAM MANAGERS FOR LOGISTICS.

Bayless, R. F.

Sep 85 AD-A160 871

ABSTRACT:

Over the last five years, significant actions have been taken by upper management levels to emphasize the importance of designing into new weapon systems a higher degree of reliability and maintainability. To further these efforts, research was needed to first, measure the significance of specific constraints impacting the 'front line' initiators in the process, namely the Deputy Program Managers for Logistics (DPMLs), and second, to identify their recommended solutions to these constraints. A literature review of what senior officials felt were problems in achieving R/M initiatives was developed into a list of seven acquisition logistics constraints. The list was then evaluated through personal interviews with the DPMLs and Directors of Logistics (DOLS) of the major programs within Aeronautical Systems Division (ASD) and Electronic Systems Division (ESD). Statistical tests showed a clear consensus by the respondents of the rank ordering of the seven constraints. In addition there were no significant differences in the rankings by the two product divisions and few statistical differences between the respondents regardless of their rank or experience level. To enhance the applied value of the research, the majority of the interview time was used collecting what the DPMLs perceived as the best solutions to these constraints.

UNITED STATES AIR FORCE TECHNICAL ORDER ACQUISITION: WHAT ARE THE
PROBLEMS AND HOW CAN THEY BE CORRECTED?

Brown, T. D.; Lyon, D. R.

Sep 84 AD-A146 931

ABSTRACT:

The objective of this research was to identify problems with the acquisition of U.S. Air Force technical orders (TOs), and to identify changes to the TO acquisition process that could solve those problems. A telephone survey of A.F. policy makers, program managers, integrated logistics support managers, and technical order acquisition managers was accomplished. The low experience level of personnel assigned to TO acquisition jobs, and coordination and communication problems were found to be the most significant problems of the technical order acquisition process. Inadequate manning and the need for earlier planning for TO acquisition were also found to be problems. Five solutions to those problems were found to be valid and were recommended for implementation. They were the establishment of a centralized TO management agency, the establishment of TOs as a separate product, the development of 'skeleton' documents, the development of a handbook out-lining responsibilities, and the establishment of a TO acquisition management career field. The establishment of a centralized TO management agency was found to be the most needed solution. An implementation plan was presented for all recommended solutions.

AN IMPROVED METHOD FOR DETERMINING LOGISTICS REQUIREMENTS FOR THE
SYSTEM SPECIFICATION.

Smith, O. A.

Sep 83 AD-A135 557

ABSTRACT:

Operating and Support (O&S) costs comprise more than half of a weapon system's total life cycle cost (LCC). In addition, 75-80 percent of a system's LCC is locked in by decisions made prior to definition of the detail system design. To reduce LCC, logistics alternatives must be addressed early and logistics constraints defined in the system specification. This thesis identifies the most likely sources of logistics constraint information so that it can better be incorporated into the system specification. This thesis addresses an alternate way to generate logistics requirements specifically for the system specification. It recognizes the Logistics Support Analysis (LSA) process and provides a way of focusing LSA inputs into the system specification. With this new procedure for early definition of the logistics requirements, O&S constraints are more likely to be adequately specified and their cost impact minimized.

RELIABILITY GROWTH PROGRAMS OF MAJOR WEAPON SYSTEMS

IN THE AERONAUTICAL SYSTEMS DIVISION

Campbell, Clinton L.

Sep 83 AD-A134 380

ABSTRACT:

New equipment may not have the required reliability after it is designed and built. Reliability growth is the improvement of the reliability of equipment resulting from correcting discovered defects. The author describes current reliability growth programs on five major weapon systems at the Aeronautical Systems Division of the Air Force Systems Command. In addition, the Component Improvement Programs for the engines used in three of those weapon systems are described. No single approach to reliability growth was determined to be the best because of substantial program differences and insufficient data.

A DECISION SUPPORT SYSTEM FOR ACQUISITION OF F-16 AVIONICS INTERMEDIATE
SHOP TEST SETS USING THE SYSTEM SCIENCE PARADIGM AND Q-GERT.

Bryson, Gary C.;Husby, David J.;Webb, Michael E. Sep 82 AD-A123 051

ABSTRACT:

Acquisition of support equipment is an integral part of initial logistics support for new weapons systems. However, uncertainty exists as to determining how much support equipment should be acquired to effectively and efficiently support a weapons system. Although many quantitative decision support tools have been developed to assist DOD logistics managers in determining the amount of support equipment required, the authors conclude that a modified F-111 test set utilization model, with contractor-provided engineering estimated parameters, was used to determine support equipment requirements for the F-16 aircraft. Using systems theory and queuing modeling to represent the F-16 LRU repair cycle process, the authors developed a Q-GERT simulation model to act as a decision support system for use in experimenting with varying quantities of F-16 AIS test sets. After statistical analysis of F-16 real world data and simulation results, the authors conclude that a Q-GERT simulation model can be used to represent the real world F-16 LRU repair cycle. In addition, two AIS test sets will statistically significantly reduce LRU awaiting maintenance times, but three will not.

BARRIERS TO FULLY IMPLEMENTING INTEGRATED LOGISTICS SUPPORT (ILS)
IN SYSTEM ACQUISITION AS PERCEIVED BY ILS MANAGERS AND PROGRAM
MANAGERS AT THE AERONAUTICAL SYSTEMS DIVISION

Hull, John R.; Lockhart, Gregory L.

Sep 82

AD-A122 979

ABSTRACT:

One of the 'Carlucci Initiatives' is to improve readiness through designed-in reliability, maintainability, and supportability in system acquisition. The vehicle for incorporating supportability in design is ILS. There is a perception that programs continue to be structured to give top priority to cost, schedule, and performance objectives, at the expense of logistics concerns. The researchers developed a list of eight 'barriers' which possibly explain the lack of consideration given ILS. The purposes of the research were to: (1) determine the relative importance of the barriers as perceived by program managers and ILS managers, and (2) determine if the two groups perceived the significance of the barriers differently. From the results of interviews with 82 managers, the researchers found substantial uniformity in perceptions between groups on the significance of the barriers. The two groups agreed that the most significant barriers to ILS are inadequate definition of logistics design parameters, and subordination of logistics concerns to cost and schedule objectives.

PROBLEMS IN THE MULTI-SERVICE ACQUISITION OF LESS-THAN-MAJOR GROUND
COMMUNICATIONS-ELECTRONICS SYSTEMS.

Cox, Leland D;Wile, David B.

Jun 81 AD-A108 647

ABSTRACT:

Acquiring defense systems which can be used by more than one service offers a potential for savings through elimination of duplicated efforts. Army and Air Force have been jointly acquiring satellite communications terminals; however, evidence exists that these joint service programs have experienced many problems. The authors discovered problems in many areas. These areas included management information, coordination between services, provisioning, funding, and training. Computer systems used in the individual services are not compatible, resulting in costly, time-consuming manual workarounds. Problems arise in cross-coordination between services because of different procedures, formal guidance, and terminology. The major area of difficulty is provisioning; here, procedural differences are most noticeable. Funding problems result in service parochialism as attempts are made to protect service funds. Finally, there has been little specific training for personnel assigned to multi-service programs. After discovering these major problem areas, the authors make specific recommendations for improvement, as well as outlining several key areas for further research.

SPARES ACQUISITION INTEGRATED WITH PRODUCTION AND ITS INFLUENCE ON
THE OBSOLESCENCE OF SPARE PARTS.

Arthur, Robert J.; Fisher, Ottis L.

Jun 80 AD-A087 505

ABSTRACT:

This thesis effort was directed toward the evaluation of the impact of ordering utilizing a program entitled Spares Acquisition Integrated with Production (SAIP). From the universe of all spares ordered in support of the A-10 aircraft program two populations were selected. The two populations consisted of spares ordered utilizing SAIP procedures and spares ordered utilizing non-SAIP procedures. From these populations two samples consisting of thirty-five part numbers each were randomly selected. A check was then made to determine how many approved Engineering Change Proposals (ECPs) each part number reflected. ECPs were determined to be a valid measure of obsolescence. A Mann - Whitney U test was then performed to determine if there was a significant difference between the number of approved ECPs processed against spares ordered utilizing SAIP procedures when compared to approved ECPs processed against spares ordered utilizing non-SAIP procedures. No significant difference was found.

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2. Department of Defense. Federal Acquisition Regulation. No. 654. Washington: Government Printing Office, 1983.

Vita

Captain Dale A. Jackman [REDACTED]

[REDACTED] He graduated from Smithsburg High School in Smithsburg, Maryland in 1981 and attended the U.S. Air Force Academy, graduating with a Bachelor of Science in Civil Engineering in May of 1985. Captain Jackman came to Wright-Patterson AFB in June of 1986 to work in the Configuration Management Directorate of the B-1B System Program Office. During his three year tour in Configuration Management Captain Jackman was responsible for development of the audit procedures for Line and Shop Replaceable Support Equipment. Captain Jackman interfaced with all major contractors and was also responsible for the small business contractors. In January of 1988 Captain Jackman took charge of configuration management responsibilities for the Defensive Avionics System of the B-1B. The greatest challenge was to come in January of 1989 when Captain Jackman terminated the audit, due to contractor's substandard performance, of a critical piece of the B-1B's defensive system. Captain Jackman worked with the Air Force and Contractor's teams to provide guidance for the contractor to perform testing and rewrite documentation to meet the specification requirements. In April of 1989 Captain Jackman chaired the reaudit, producing the lowest number of discrepancies in the contractor's history. Captain Jackman entered the School of Systems and Logistics, Air Force Institute of Technology, in May 1989.

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REPORT DOCUMENTATION PAGE			Form Approved OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.				
1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE September 1990	3. REPORT TYPE AND DATES COVERED Master's Thesis		
4. TITLE AND SUBTITLE A Compendium of Air Force Institute of Technology Thesis Abstracts Related to Acquisition Management		5. FUNDING NUMBERS		
6. AUTHOR(S) Dale A. Jackman, Captain, USAF				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Air Force Institute of Technology, WPAFB OH 45433-6583		8. PERFORMING ORGANIZATION REPORT NUMBER AFIT/GSM/LSY/90S-17		
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)		10. SPONSORING/MONITORING AGENCY REPORT NUMBER		
11. SUPPLEMENTARY NOTES				
12a. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited		12b. DISTRIBUTION CODE		
13. ABSTRACT (Maximum 200 words) This study reviewed all thesis abstracts produced by the students of the Air Force School of Systems and Logistics from the first class through the graduating class of 1989. The purpose of this research was to identify and consolidate all abstracts into one compendium related to Acquisition Management. The compendium presents the abstracts in four separate areas related to Acquisition Management. The four areas are: Systems Management, Contract Management, Cost Management, and Logistics Management (as related to the acquisition process). There is no evaluation made of the theses contained within the compendium. The abstracts were obtained through a DTIC search of all theses completed by students of the School of Systems and Logistics. The DTIC search was then narrowed by reviewing each of the thesis abstracts and determining if the thesis met the criteria for inclusion. The abstracts were then classified into one of the broad categories listed above. All abstracts are listed in alphabetical order by DTIC number within the respective categories, reverse chronological order.				
14. SUBJECT TERMS Acquisition Management, Contract Management, Contract Administration, Cost, Systems Management, Program Management, Theses.			15. NUMBER OF PAGES 176	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT UL	